NATIONAL CONSERVATION LANDS

National Scenic and Historic Trails Inventory, Assessment, and Monitoring Methodology

Volume 1: Methodology, BLM Technical Reference 6280-1

January 2020

For help with any of the report's content, please contact the Bureau of Land Management.

Department of the Interior
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National Scenic and Historic Trails Inventory, Assessment, and Monitoring Volume 1: Methodology Technical Reference 6280-1

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Foreword

Today there are 60,000 miles of congressionally designated National Scenic and Historic Trails—exceeding the length of the Interstate Highway System! Implementation of this system began over 50 years ago with the signing of the National Trails System Act (NTSA). The quest to adequately identify and protect this system continues. The Bureau of Land Management (BLM) offers this Inventory, Assessment, and Monitoring Methodology and Field Guide to advance a consistent and repeatable approach for collecting resource-integrated baseline data for these trails and trails of all kinds. A thoughtful and well-articulated inventory, assessment, and monitoring approach based on the NTSA will foster interoperability and data exchange that is so critical for these national assets and resources that cross jurisdictions and benefit from collaborative action.

As intended by the U.S. Congress, National Scenic and Historic Trails are not only pathways, but corridors of the associated scenery, historic elements, related cultures, recreational aspects, and the surrounding natural environments. These landscape elements, in turn, directly influence trail experiences and visitor expectations. If we strive to identify these values, and keep the national trail settings intact, current visitors will enjoy and better appreciate them as intended, and we can then leave this legacy for generations yet to come.

A very special thanks goes to staff and managers of the BLM Washington Office, BLM Utah and Arizona State Offices, and Tucson, Yuma, and Lower Sonoran Desert BLM Field Offices for labor and operational support; the BLM National Training Center for pilot training coordination; the BLM, U.S. Forest Service, and National Park Service Trail Administrators and the Federal Highway Administration (FHWA) Recreational Trails Program Administrator for technical assistance; the Partnership for the National Trails System for review and project support; and the in-field training engagement of volunteer members of the Arizona National Scenic Trail and Juan Bautista de Anza National Historic Trail organizations. BLM also thanks the FHWA for Recreational Trails Program funding through an Interagency Agreement.

"Don't overlook the view *from* the trail; it means more than meets the eye."

— Deb Salt and Karla Rogers, BLM

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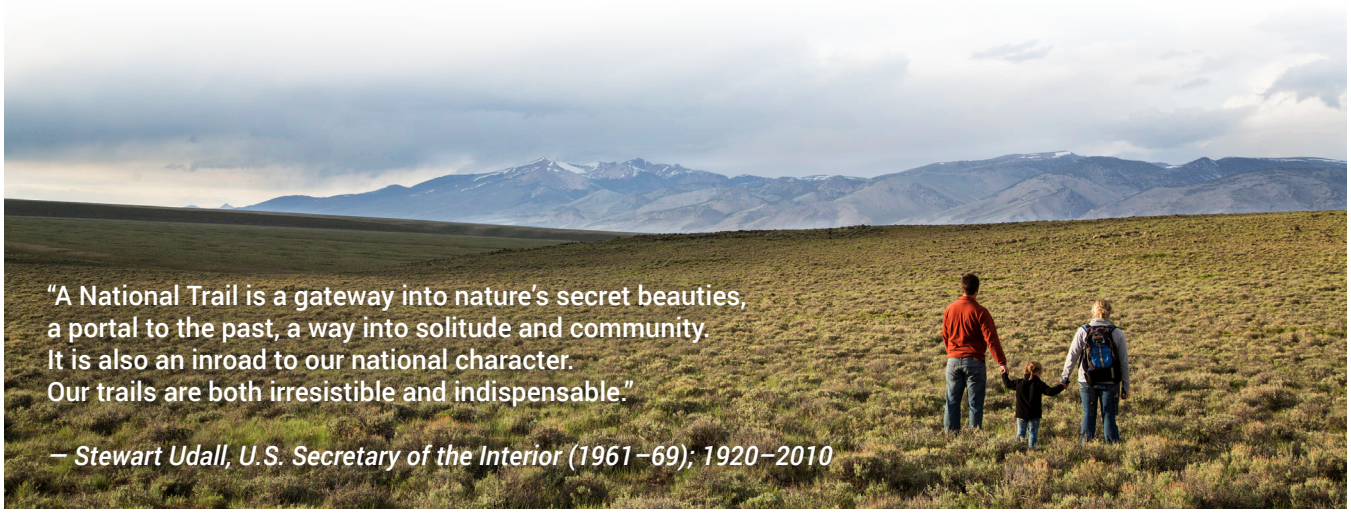

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ICON KEY

Tip

Best Practice

Question

Term Definition

Minimum IAM GIS Requirements

1.1 Purpose

This technical reference is provided to help implement the requirements and purposes set forth in the National Trails System Act; the Federal Land Policy and Management Act; and other laws and policies applicable to inventorying, assessing, and monitoring National Scenic and Historic Trails (NSHT or National Trails).

Consistency in inventorying, assessing, and monitoring the resources and uses present along National Trails and trail systems is essential for sound management and sustained protection of the nature and purposes. This document provides guidance on how to conduct effective inventory, assessment, and monitoring (IAM) of:

- Congressionally designated National Trails
- Trails under study
- Trails recommended as suitable

The protection of National Trails benefits current and future generations.

The IAM Methodology

The long-distance, cross-jurisdictional nature of National Trails necessitates the development of a consistent and repeatable method for conducting IAM efforts. The IAM methodology is a standardized process for all National Trails, and a model for any Federal, State, or local land managers. Implementing this methodology supports the **nature and purposes** of National Trails through comprehensive documentation and improved data management practices for:

- Trail-related resources, qualities, values, and associated settings
- The primary use or uses of the trail

Nature and purposes:

The character, characteristics, and congressional intent for a designated National Trail, including:

- The resources, qualities, values, and associated settings of the areas through which such trails may pass
- The primary use or uses of a National Trail
- Activities promoting the preservation of, public access to, travel within, and enjoyment and appreciation of the trail

Application of the methodology is applied equally to both National Scenic Trails (NST) and National Historic Trails (NHT). Exactly how or where the techniques are applied may vary by trail type. While both trail types share fundamental similarities, certain aspects of each are quite unique—like the fact that NSTs are continuous or that high potential historic sites are only identified for NHTs. When this is the case, the IAM highlights methods unique to one trail type or the other.

The IAM methodology outlined in this document takes an interdisciplinary approach that relies upon existing program methods, skill sets, and data standards.

Safeguarding the nature and purposes of National Trails is of utmost importance.

How Are the Results of the IAM Process Used?

IAM results can be used to establish a National Trail Management Corridor through the land use planning process, to inform National Environmental Policy Act analyses for land use plans, and for the analysis of proposed actions, including identification of the area of potential **adverse impacts** and effects on the primary use or uses present in the area.

Adverse impacts:

Negative effects on National Trail characteristics, such as:

- Impacts to high scenic values and premier trail-related opportunities
- Impacts to high potential historic sites, route segments, and vicarious experiences
- Impacts to natural resource settings

1.2 Objectives

The methodology is intended to meet multiple objectives, including:

- **Safeguarding the nature and purposes of designated National Trails** by defining effective methods for inventorying, monitoring, protecting, developing, maintaining, providing training on, and operating (stewardship responsibilities) National Trails.
- **Complying with the requirements** of National Trails System Act, Federal Land Policy and Management Act, trail-enabling legislation, and other pertinent laws, regulations, and policies.
- **Providing consistent and repeatable processes associated with National Trail IAM** for land use planning and project evaluation that guides the establishment and management of National Trail corridors.
- **Improving management** by identifying on-the-ground opportunities and adaptive management strategies that achieve trailwide comprehensive plan and land use plan goals.
- **Providing a transferable IAM process** that can be applied by other Federal or State agencies, Tribes, local governments, and private interests for managing components of National Trails System trails, trails of other kinds, and similar linear resources or designated areas.

1.3 How to Use This Methodology

Section 2	Section 3	Section 4	Section 5	Section 6	Volume 2, Field Guide
explains how to initiate an IAM process.	explains how to conduct National Trail inventories.	covers inventories for trails under study or that have been recommended as suitable for designation.	explains how to assess inventory results.	describes the process for monitoring.	provides pre-field, field, and data sharing practices for field managers and specialists in carrying out the IAM process.

Companion Documents

Contact the BLM's National Historic and Scenic Trails Office for companion documents to this methodology, which include:

- Geographic information system (GIS) methods and data standards
- Training materials and lesson plans
- Program workload and performance measures

1.4 IAM Responsibilities

IAM is guided by Bureau of Land Management (BLM) Manual 6280—Management of National Scenic and Historic Trails under Study or Recommended as Suitable for Congressional Designation—and is the responsibility of BLM staff to carry-out. To achieve cohesive management and overall trail preservation, this IAM methodology may also be implemented by other agencies and organizations for added consistency and standardization to benefit National Trails as they cross administrative boundaries.

BLM partners include other land management agencies such as the National Park Service, U.S. Forest Service, and other Federal, State, and local agencies who can also benefit from the IAM methodology. The methodology will also be helpful for Federal-aid grantees of the Federal Highway Administration, National Park Service, or other Federal agencies, including State and local entities, trail associations and volunteers of nonprofit organizations such as the Partnership for the National Trails System and applicants who submit proposals for use or development of resources that may affect National Trails, Tribes, and the general public.

Primary use or uses:

Primary use or uses of National Trails will vary. These are comprised of the authorized mode(s) of travel and/or activities identified in the National Trails System Act, enabling legislation, or legislative history through the trailwide comprehensive plan or approved resource management plan.

After Congressional designation of a trail, the BLM is responsible for:

- **Inventorying, assessing, and monitoring** the National Trail's:
  - Resources, qualities, values, and associated settings
  - **Primary use or uses** (see page 4)
- **Managing resources and uses** in a manner that will:
  - Avoid **incompatible activities**
  - Not **substantially interfere** with the nature and purposes of the National Trail

Incompatible activities:

An activity that affects (hinders or obstructs) the nature and purposes of a designated National Trail.

Substantial interference:

The determination that an activity or use affects (hinders or obstructs) the nature and purposes of a designated National Trail.

1.4.1 Resource Program Roles and Relationships

National Trails are linear resources that interface with many different resource programs and often cross multiple administrative boundaries. Therefore, the IAM process is intentionally interdisciplinary, bringing together multiple programs and blending the expertise of various resource specialists. Further, the process is intended to support consistent land use planning across jurisdictional boundaries. Effective management of National Trails requires working at multiple levels with Federal agencies (Field, State, and Headquarter offices), State agencies, Tribes, local governments, and private interests involved. Figure 1 illustrates the roles and responsibilities of the Field and State offices, as well as the Trail Administrator.

Figure 1. Federal Roles and Responsibilities for National Trail Management

TRAIL ADMINISTRATOR

Consults with:
- National Trail Managers with Physical Site IAM Responsibility

Responsibilities:
- Trail Coordination and Guidance
- Technical Assistance

STATE OFFICE

Coordinates with:
- Federal Agency Headquarters National Trails Program Lead
- Adjacent State and National Trails Managers
- Trail Administrator

Responsibilities:
- Ensures IAM Budgets/Actions are Consistent with Policy

FIELD OFFICE

Coordinates with:
- Interdisciplinary Team
- Field, District, State Offices of Other Public Land Managers
- Tribes

Responsibilities: On-the-ground IAM
- Local Governments
- Private Interests, including Non-profit Organizations

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2. INITIATING THE INVENTORY, ASSESSMENT, AND MONITORING PROCESS

Figure 2 provides an overview of National Trails inventory methodology and respective roles. The figure and this section outline the steps to follow for all IAM efforts.

The level of resources needed to conduct the IAM process will vary for each National Trail, depending on local considerations. These include:

- The **landscape elements present in the area** that support the nature and purposes of the National Trail
- The **size and scale** of the **inventory analysis unit** (see page 8)
- Whether any **relevant partial inventories** exist

When Should the IAM Methodology Be Employed?

At a minimum, National Trail inventories are required:

- Upon Congressional designation
- In advance of land use planning
- When projects are proposed that could affect a National Trail's Nature and Purposes, including the trail's:
  - Resources, qualities, values, and associated settings
  - Primary use or uses

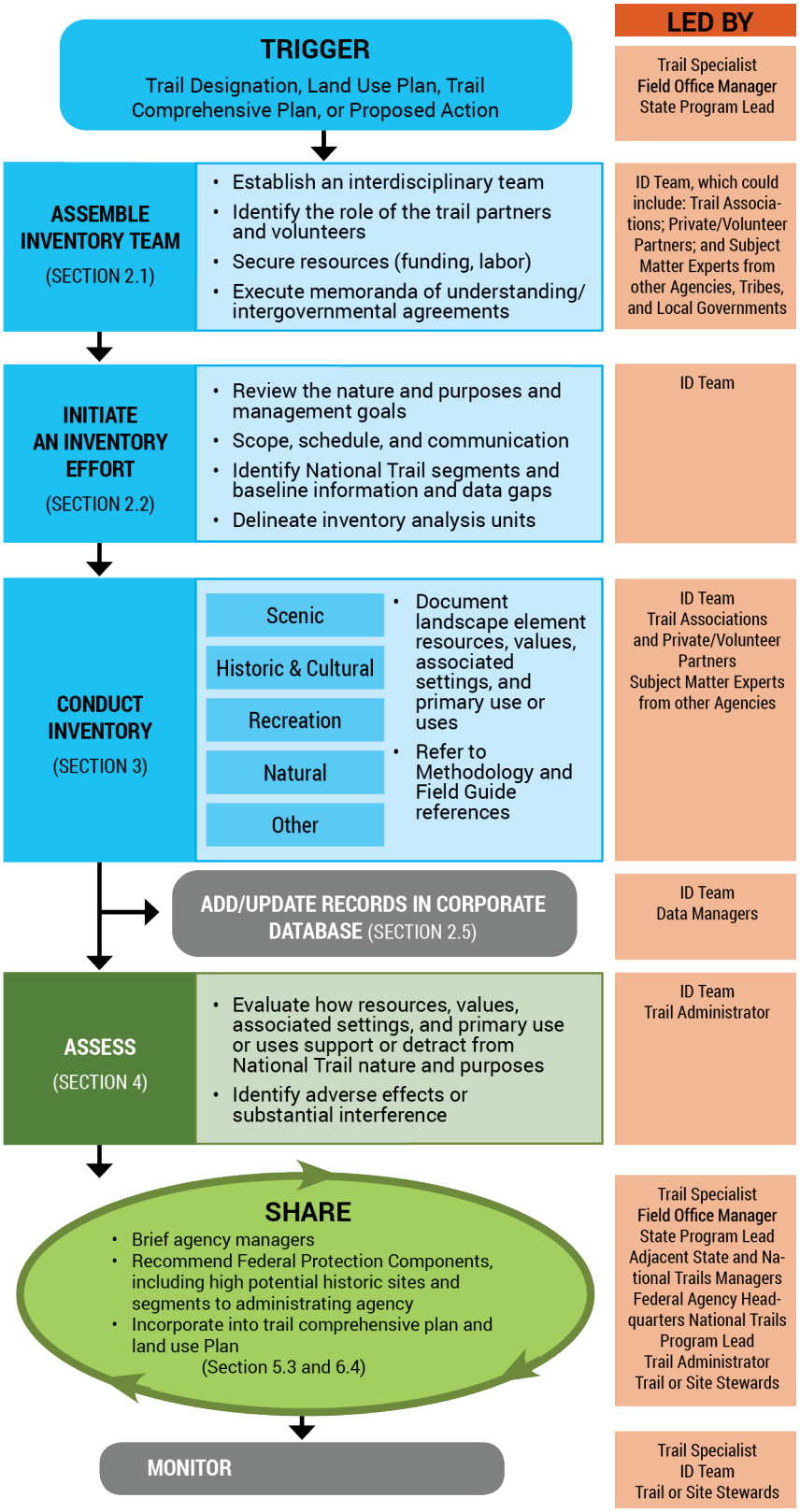


Figure 2. NSHT IAM Inventory Methodology

2.1 Establishing an Interdisciplinary Team

The IAM methodology relies on the existing resource programs, skill sets, and data standards already in use by members of an **interdisciplinary (ID) team**. An ID team approach not only ensures the integration of scenic, archaeological, cultural, recreational, biological, and other sciences during the IAM process, but also offers insights for future preservation and stewardship of each resource.

Establishing an ID team is essential to ensure the integration of biological, economic, social, and other sciences during the IAM process. The roles of ID team members vary, but generally include:

- Assessing data gaps
- Determining appropriate data collection needs and methods
- Conducting desktop and/or field inventories
- Assessing findings
- Determining appropriate use, sharing, and application of the inventory results
- Monitoring plan development and implementation

The IAM lead (typically the local trail specialist) recommends and obtains approval of resource program specialists to serve on the ID team in consultation with appropriate management staff and program leads.

Inventory Analysis Unit:

A polygon encompassing discrete segments of the National Trail and the associated viewshed, based on the presence of similar conditions.

Interdisciplinary Teams:

ID teams should include:

- A core team led by the trails specialist or other identified project lead
- A management representative or advisor
- Resource specialists

ID teams should include a core team led by the trails specialist or other identified project lead, a management representative or advisor, and resource specialist members. Resource specialists represented on the ID team should reflect the landscape elements being analyzed and be appropriate to the scale of the National Trail being inventoried. The ID team members may change as the project moves forward, but it is generally beneficial to include a comprehensive suite of skill sets within the team. Members of the ID team may be directly involved in one or more of the IAM steps or provide general guidance and direction.

Depending on the scale of the inventory (e.g., statewide or only select trail segments), multiple offices may be involved, representing the applicable major resource programs. Where the trail to be inventoried crosses multiple jurisdictions, multiagency ID teams may be advantageous. Regardless of the scale of the project, the ID team should include a core team as described above, relying on an extended ID team as needed.

2.1.1 Identifying Trail Partner and Volunteer Roles and Involvement

Trail partners and volunteers are valuable resources and may add needed perspectives to the IAM process. In addition, these groups add resources, leverage expertise, build capacity, and improve subsequent use and monitoring of the inventory. Appropriate training is to be given to National Trail partners and volunteers who will be collecting data for NSHT IAM processes as described in Section 7. Types of National Trail partners and volunteers may include:

National Trail administering agency. The National Trail Administrator can provide funding, coordination, technical assistance, and peer review of IAM projects.

Local, regional, State, and Federal government agencies. Agencies that share land management of the trail are often interested in inventorying and monitoring trail resources, qualities, values, associated settings, and the primary use or uses.

Tribes. Tribes may be interested in leading, participating in, or supporting inventory and monitoring work along National Trails. They may also have specialized knowledge critical to trail management or understanding. Consider Tribal interests and follow established protocols when interacting with Tribes.

Recreationists. Recreationists may be highly knowledgeable about trail resources. These individuals can be advocates for the trail and its management and can assist in the establishment of a corridor.

Historians and Archaeologists. Historians and archaeologists may have extensive knowledge related to the trail, which can assist in interpretation. Where appropriate, the local State Historic Preservation Office should be involved.

Communities. Gateway communities are becoming “trail towns” along the various National Trails. These communities provide needed services to trail tourists, thereby benefiting economically, and often take pride in sharing local culture, creativity, customs, special events, and other amenities with trail users.

Trail partner, private, and nonprofit organizations. Local and regional partner organizations may be volunteer or advocacy groups or a combination of the two.

Permittees and industrial land users. Permittees (such as BLM grazing permittees) and industrial land users (such as renewable energy developers, utility companies, and mining operators) may partner to participate in National Trail inventory and monitoring.

2.2 Identifying the Nature and Purposes of the National Trail

The ID team's first step is understanding and documenting the nature and purposes of the trail so it can be safeguarded, as required by the National Trails System Act. Understanding a trail's nature and purposes allows the ID team to identify the landscape elements, resources, qualities, values, associated settings, and primary use or uses that are relevant to the inventory.

As set forth in National Trails System Act Sections 5(e) and (f), the trailwide comprehensive plan should identify the nature and purposes of each National Trail after the trail has been designated. However, not every comprehensive plan explicitly identifies the nature and purposes of the National Trail and not every National Trail has a finalized comprehensive plan. If a National Trail does not have a defined nature and purposes statement or even a written comprehensive plan, the land manager should coordinate with the National Trail administrator for interim guidance. The enabling legislation, feasibility study, administrative strategy, and foundation documents are other sources of information that can be used to understand the nature and purposes of the National Trail.

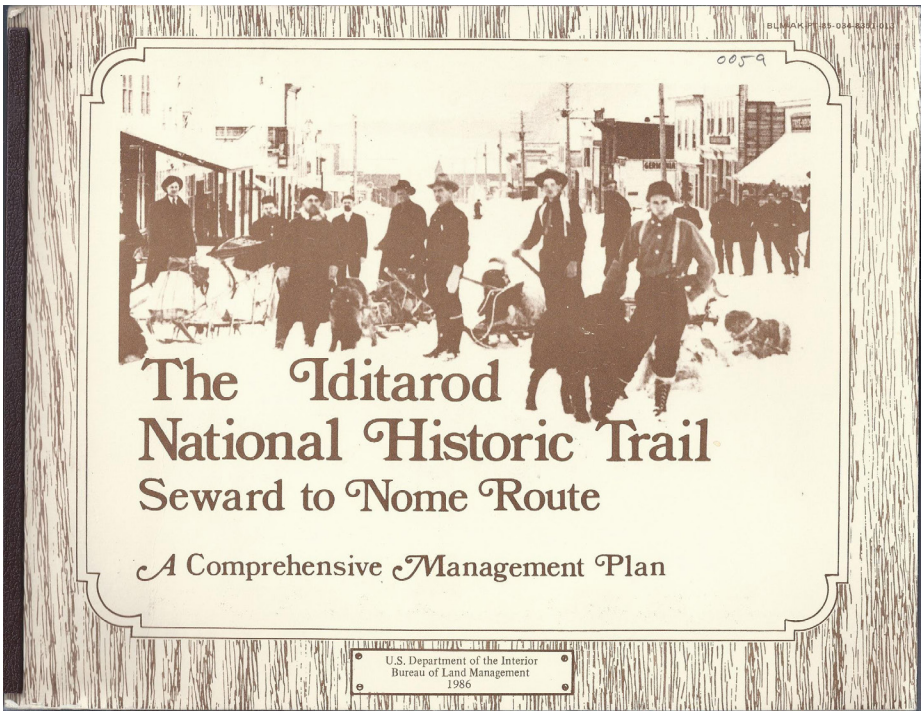
Articulating the Trail's Nature and Purposes

Review existing documents for a nature and purposes statement. Bear in mind that the nature and purpose statement may be named something else. Documents to review include the trail's:

- Comprehensive plan
- Feasibility study
- Foundation documents
- Legislative history
- Land use plan

Identify keywords, significance statements, and interpretive themes associated with the nature and purposes statement. Nature and purpose statements may go by other names.

If the nature and purposes cannot be determined from the resources identified above, inquire with the assigned trail-wide Department of Interior- or Department of Agriculture-delegated National Trail administrator (National Park Service, U.S. Forest Service, or BLM) if uncertain.



Example of a Comprehensive Management Plan.

2.2.1 Determining What to Inventory

National Trail inventories document a given trail segment's resources, qualities, values, and associated settings through the lens of four primary **landscape elements**:

- Scenic
- Historic and cultural
- Recreation (including recreational travel management)
- Natural (including biological, geological, and scientific)

Landscape Element:

A resource that provides a basis for determining setting, qualities, values, and the primary use or uses of a National Trail. The four primary landscape elements are scenic, historic and cultural, recreation, and natural resources.

Only inventory the resources, qualities, values, associated settings, and primary use or uses that support the nature and purposes of the subject National Trail. Review the governing trailwide comprehensive plan and land use plan for relevant goals, objectives, standards, and monitoring commitments that can focus the inventory around a set of indicators.

Data collected should also be:

- Compilable
- Repeatable (for future monitoring)
- Issue driven (to resolve an issue, inform a decision, select an alternative, etc.)
- Related to desired future conditions

2.2.2 Who Determines What to Inventory

To the greatest extent practicable, the ID team collaborates on identifying which National Trail segments and landscape elements should be inventoried. Because each National Trail has a unique nature and purposes, the minimum inventory necessary for each landscape element will vary by National Trail.

2.3 Development of an IAM Approach

2.3.1 Scope

Trail managers should develop and maintain a well-thought-out project or communications plan. The plan should outline the scope of the project, organizations involved (with contact information), roles and responsibilities, funding needs, and communications and data protocols. This will ensure the ongoing coordination is efficient and manageable, especially over the long term.

2.3.2 Resources Needed

To conduct a comprehensive review of resources:

- Identify initial landscape element data gaps that require further research and evaluation during the inventory
- Review staffing, equipment, and logistics against the schedule (e.g., access to the inventory analysis unit, number of field crews, time of year, and data collection methods and field equipment)

Preparing a Project Plan:

- Develop a project and/or communications plan that includes a schedule
- Consider such items as the number and scale of inventory analysis units, time of year, and data collection methods to develop a simple and efficient process
- Identify the role of trail partners and volunteers
- Identify and obtain funding or other resources for the IAM effort
- Prepare and assist in executing a memorandum of understanding or intergovernmental agreement for cost, labor, or data sharing
- Anticipate equipment and logistics for field data collection
- Agree on the minimum inventory requirements for each landscape element
- Obtain manager or sponsor approval of the project plan

2.4 Onsite Training and Kick-off Meeting

Schedule an onsite training and kick-off meeting with all ID team members, decision-makers, volunteers, and partners to ensure that participants understand the value of IAM, how the inventory will be used, and the importance of inventory records associated with each landscape element.

Design the agenda to achieve the following outcomes:

- Provide instruction on the nature and purpose of the National Trail, the IAM process, and the roles of each ID team member using the training resources in Section 7
- Confirm the National Trail segment, map the IAU and inventory points (see Section 3.1)
- Review project tasks and the schedule and confirm participant availability
- Agree on communication protocols between participants, external partners, and decision-makers
- Inform participants of health and safety risks and precautions, travel routes, and other concerns such as property access and gate maintenance etiquette
- Confirm best available information associated with each landscape element, identify data gaps, and agree on the applicable data standards and data management procedures

2.5 Data Management and the NSHT Inventory Record

2.5.1 Coordination, Sharing, and Protection of National Trail Data

ID teams use the best available data and assess data adequacy so that the presence and condition of National Trails are clearly, consistently, and accurately identified. An integral component of the IAM program is collecting and sharing data. Following consistent practices for collecting and storing data will allow for the efficient exchange of information with Federal and State agencies, local governments, the general public, and other entities.

Data Collection

The use of data standards and applicable program policies aid and enhance productivity, consistency, and efficiency of the field data collection and recording process. Best practices for data collection include the following:

- Collect data (including images) using Federally-approved data standards and GIS implementations when possible
- Collect metadata according to current best practices
- Coordinate data collection of the various data themes identified for a NST or NHT so they can be appropriately considered together at a given spatial scale, spatial grain, and/or timeframe

Open data policies should be followed. Sharing high-quality IAM information improves scientific discovery, stewardship, and efficiency when managing National Trails. To facilitate this—and in accordance with applicable policies and protocols—ID team ensure that agencies, organizations, partners, and the public have reasonable access to usable data.

Remember that sensitive, confidential data cannot be shared to protect resources. Methods for sharing sensitive data and with whom it must be shared are outlined in formal agreements, such as intergovernmental agreements and memoranda of understanding.

2.5.2 NSHT Data Standards

ID teams, (whether Federal agencies or their contractors) must meet data collection requirements outlined in applicable Federal law and regulations, such as the Paperwork Reduction Act of 1980, particularly when the collection method depends on input from members of the public. Although Federal restrictions on data collection do not necessarily apply to other entities, States and local governments may have similar data collection restrictions.

A data steward, with the cooperation of the ID team, starts rigorously managing and following established data standards early in the process to ensure the seamless transfer and usability of this data. Data collectors should take resource program policy, Federal Trail Data Standards, and related national geospatial standards into account. Data standards and data need to be clearly described and communicated to promote efficient use of time and resources among partners.

Data Standards

Data standards are central to three major IAM steps:

1. **File Maintenance:** National Trail administrators and managers maintain organized records to the same standard to promote efficient use of time and resources among partners (see BLM Manual 6250, Section 1.7 and BLM Manual 6120, Sections 13 and 15).
2. **Identifying Best Available Baseline Information and Data Gaps:** Inventory and monitoring efforts use and evaluate the best available scientific sources for applicability and relevancy. Adherence to data standards improves data accuracy, reliability, and efficiency of IAM efforts.
3. **Sharing:** To enable consistent use of IAM information, National Trail administrators, managers, and IAM participants comply with resource program policy, the Department of Interior data management standards, Federal Trail Data Standards, related national geospatial standards, and other data standards and management policies, including those addressing sensitive cultural resource data.

There are two parts to the IAM inventory record:

- **Locally sourced IAM records** for IAUs. These records include newly created data, including:
  - Maps of trail segments
  - Maps of the IAU
  - Any landscape element data, map, or narrative stored as a static dataset that may not be available as a streaming GIS server layer. These data are saved to the National Trail serialized case file.
- **Corporately sourced records.** These feature classes or data themes that are already collected for another purpose yet have transferrable use for an National Trail landscape element. Examples include updates to the BLM Ground Transportation Linear Features or Cultural Resources Class II or III inventories.

Table 1 lists sources of spatially referenced base data meeting the minimum IAM needs that apply to BLM-managed National Trails and that enable sharing across agencies. Other land managers may have similar data standards and/or geodatabases. Table 1 identifies relevant and existing data standards and corresponding GIS repositories. This list may be used to source data or to transfer data schemas should intensification efforts be needed to meet these minimum data needs. By utilizing existing data standards (where available) during the course of the IAM process, data collection or update efforts may add efficiencies by being in a format favorable to integration back into the referenced corporate dataset.

Table 1. Minimum IAM GIS Requirements

GIS IAM Deliverable	Data Standard or Guidance	Notes and Sources (i.e., Online GIS Repository if available)
Base Data (Common to All Landscape Elements)		
Designated National Trail, including IAM segments (polyline)	National Conservation Lands Data Standards, September 8, 2010, Version 1.1	Using the corporate database source, divide the trail into segments for IAM. https://gis.blm.gov/arcgis/rest/services/lands/BLM_Natl_NLCS_NSHT/MapServer
Inventory Analysis Unit (IAU, polygon)	N/A	Create through the inventory process.
High Potential Historic Sites (points) **and Segments** (polyline)	4) Federal Trail Data Standards, November 2011, p. 16 (note applicable attributes "NHT_HP_SIT" and "NHT_HP_SEG") 5) National Conservation Lands Data Standards, September 8, 2010, Version 1.1	NHTs only. GIS databases in use by the respective agencies will continue to be used, with each agency adhering to the FTDS (Per FTDS page 60, point 4 and 5).
Viewshed Analysis (raster/polygon)	BLM Visual Resource Inventory Data Standard Report August 16, 2010 Version 1.2	Create through the inventory process.
NSHT Inventory Points (points)	N/A	Import from existing Visual Resource Inventory (Inventory Observation Points); Assessment, Inventory and Monitoring (AIM) monitoring points; and other cultural and recreation sites. Select additional IPs as necessary.
Scenic Landscape Element (BLM Manual 6280, 3.5.E.1)		
NSHT Distance Zones (polygon)	Similar to BLM VRI Data Standard Report August 16, 2010 Version 1.2	https://gis.blm.gov/arcgis/rest/services/recreation/BLM_Natl_VRI_Inventories/MapServer/2
NSHT Sensitivity Level Rating Units (polygon)	Similar to BLM VRI Data Standard Report August 16, 2010 Version 1.2	https://gis.blm.gov/arcgis/rest/services/recreation/BLM_Natl_VRI_Inventories/MapServer/1
NSHT Scenic Quality Rating Units (polygon)	Similar to BLM VRI Data Standard Report August 16, 2010 Version 1.2	https://gis.blm.gov/arcgis/rest/services/recreation/BLM_Natl_VRI_Inventories/MapServer/0

GIS IAM Deliverable	Data Standard or Guidance	Notes and Sources (i.e., Online GIS Repository if available)
Historic and Cultural Landscape Element (BLM Manual 6280, 3.6.4)		
Cultural Resource Class I, II, or III Inventories (polygons)	BLM Cultural Resource Management Implementation Guidelines, February 14, 2018, Version 1.3	Sensitive data, no public repository. Data stored in State-specific repositories, often managed by the SHPO, or in accordance with SHPO. Document Eligibility and Traditional Cultural Properties as attributes.
Cultural Resource Class I, II, or III Resources (sites, polygons)	BLM Cultural Resource Management Implementation Guidelines, February 14, 2018, Version 1.3	Sensitive data, no public repository. Data stored in State-specific repositories, often managed by the SHPO, or in accordance with SHPO. Document Eligibility and Traditional Cultural Properties as attributes.
Recreation Landscape Element (BLM Manual 6280, 3.5.E.5)		
National Trail-related recreation infrastructure and opportunities (polylines, points)	1) Facility Asset Management System (FAMS) 2) Recreation Information Database (RIDB) 3) Facility Management Software System (FMSS)	https://gis.blm.gov/arcgis/rest/services/recreation
Travel systems and opportunities (polylines)	Ground Transportation Linear Features Data Standard (IM 2015-061), March 13, 2015	https://gis.blm.gov/arcgis/rest/services/transportation
Natural Landscape Element (BLM Manual 6280, 3.5.E.7)		
Forest or rangeland health, noxious or invasive species, and threatened or endangered species inventories	1) BLM AIM 2) Noxious species 3) Threatened and endangered species 4) State Natural Heritage or Game and Fish/ Natural Resources Databases, varies by State	Overlay GIS data with IAUs and summarize high quality information relevant to the nature and purposes of the National Trail. Sources vary by State and species. 1) https://gis.blm.gov/arcgis/rest/services/vegetation/BLM_Nat_AIM_Terrestrial/MapServer 2) https://webmaps.blm.gov/Geocortex/Html5Viewer/index.html?viewer=NISIMS_Publication.NISIMS_Publication_HTML51 3) https://ecos.fws.gov/ipac/ 4) Varies by State
Habitat, soil, vegetation, water, air, or riparian resource inventories	1) BLM AIM 2) LANDFIRE (Raster) 3) SWReGAP (Raster, Polygon species models) 4) NRCS Ecological Site Information System (Non-GIS) 5) EPA Level III, IV Ecoregions 6) State Natural Heritage or Game and Fish/ Natural Resources Databases, varies by State 7) National Gap Landcover 8) NRCS Web Soil Survey (Polygon/Point) 9) USGS National Hydrography Dataset (Polygon/Point) 10) USFWS National Wetlands Inventory (Polygon/Point) 11) Springs Stewardship Institute (Interagency, Point Data)	1) https://landscape.blm.gov/geoportal/catalog/main/portal.page 2) https://www.landfire.gov/data_access.php 3) https://swregap.org/data/browse/?prefix=public/data/landcover 4) https://esis.sc.egov.usda.gov/Welcome/pgESDWelcome.aspx 5) https://www.epa.gov/eco-research/level-iii-and-iv-ecoregions-continental-united-states 6) Varies by State 7) https://www.usgs.gov/core-science-systems/science-analytics-and-synthesis/gap/science/land-cover-data-web-services?qt-science_center_objects=0#qt-science_center_objects 8) https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx 9) https://viewer.nationalmap.gov/services/ 10) https://www.fws.gov/wetlands/Data/Web-Map-Services.html 11) https://springsdata.org/

GIS IAM Deliverable	Data Standard or Guidance	Notes and Sources (i.e., Online GIS Repository if available)
Landforms and physical representation of the landscape setting (desert, marsh, grassland, mountain, canyon, river, or other significant characteristics of the physiographic region)	1) EPA Level III and IV Ecoregions of the Continental United States (Reports and Polygon Data) 2) BLM Landscape Approach—Rapid Ecoregional Assessments (Reports and Polygon Data) 3) Landfire Vegetation Type Data Products (USGS, Raster Data) 4) National GAP Land Cover Data Portal (USGS, Raster Data) 5) SWReGAP (Interagency, Raster Data) 6) National Gap Landcover 7) USGS Topographic Maps (USGS, Georeferenced Portable Document Format [PDF] or Streaming GIS Layer) 8) BLM 100K Quad Maps (BLM, Georeferenced PDF or Streaming GIS Layer)	1) https://www.epa.gov/eco-research/level-iii-and-iv-ecoregions-continental-united-states 2) https://landscape.blm.gov/geoportal/catalog/main/portal.page 3) https://www.landfire.gov/data_access.php 4) https://www.usgs.gov/core-science-systems/science-analytics-and-synthesis/gap/science/land-cover-data-web-services?qt-science_center_objects=0#qt-science_center_objects 5) https://swregap.org/data/browse/?prefix=public/data/landcover 6) https://www.usgs.gov/core-science-systems/science-analytics-and-synthesis/gap/science/land-cover-data-web-services?qt-science_center_objects=0#qt-science_center_objects 7) https://basemap.nationalmap.gov/arcgis/rest/services/USGSTopo/MapServer 8) https://gis.blm.gov/coarcgis/rest/services/lands/BLM_CO_SurfaceManagementAgency/MapServer

Key: AIM = Assessment, Inventory and Monitoring, EPA = U.S. Environmental Protection Agency, FTDS = Federal Trail Data Standards, GIS = Geographic Information System, IAM = inventory, assessment, and monitoring, IP = inventory point, NPS = National Park Service, NRCS = National Resources Conservation Service, NRHP = National Register of Historic Places, NSHT = National Scenic and Historic Trail, SHPO = State Historic Preservation Office, USFWS = U.S. Fish and Wildlife Service, USGS = U.S. Geological Survey, VRI = Visual Resource Inventory

Throughout Section 3, the minimum IAM GIS requirements, feature type (point, line, or polygon), and applicable Federal data standard are called out with this icon.

3. CONDUCTING THE NATIONAL TRAIL INVENTORY

Each landscape element—scenic, historic and cultural, recreation, and natural—typically has resources, qualities, values, associated settings, and a primary use or uses that embody the nature and purposes of the trail. To the greatest extent practicable, the inventory should be conducted for each of the four landscape elements prior to determining the extent of the associated settings. The inventory of the associated settings is based on the documentation of the segment's resources, qualities, and values, and the primary use or uses.

Other landscape elements (such as facilities, existing land uses, valid existing rights, sounds, and smells) within the **viewshed** that may support or detract from the nature and purposes of the National Trail should also be inventoried; some of these may be captured within the four primary landscape elements.

3.1 Identifying Trail Segments, Visibility, Inventory Analysis Units and Inventory Points

During initiation of the inventory (see Manual 6280, Section 3.4, and the companion Field Guide, Section 1.2), the ID team determines IAUs following the steps below:

1. Determine the **national trail segment(s)** to inventory (line)
2. Conduct a visibility analysis (raster or polygon)
3. Delineate the IAU (polygon)
4. Identify inventory points (points)

3.1.1. Determining Trail Segments to Inventory

The ID team should divide the trail into distinct segments based on its unique features or landforms, jurisdictional boundaries, management goals and objectives, ownership patterns, or landscape-scale man-made features such as roads or trail access points. In the case of NHTs, National Register-eligible properties, **high potential historic site(s)**, and **high potential route segment(s)** can also serve as segment boundaries.

Viewshed:

The geographic area visible from a defined location such as trail segment or observation point.

National Trail segment:

Individual sections of a National Trail that, in combination, comprise the entire National Trail. Segments are categorized based on similar trail conditions, and characteristics such as ownership patterns and presence of high potential route segments. Each segment may contain unique features or landforms, and variable resources, qualities, values, or associated settings.

High potential historic site:

Historic sites related or in close proximity to a route that provide opportunities to interpret the historic significance of a trail during the period of its major use.

High potential route segments:

Segments of a trail in a portion of the route that have greater than average scenic values or that allow opportunities to vicariously share the experience of the original users of a historic route.

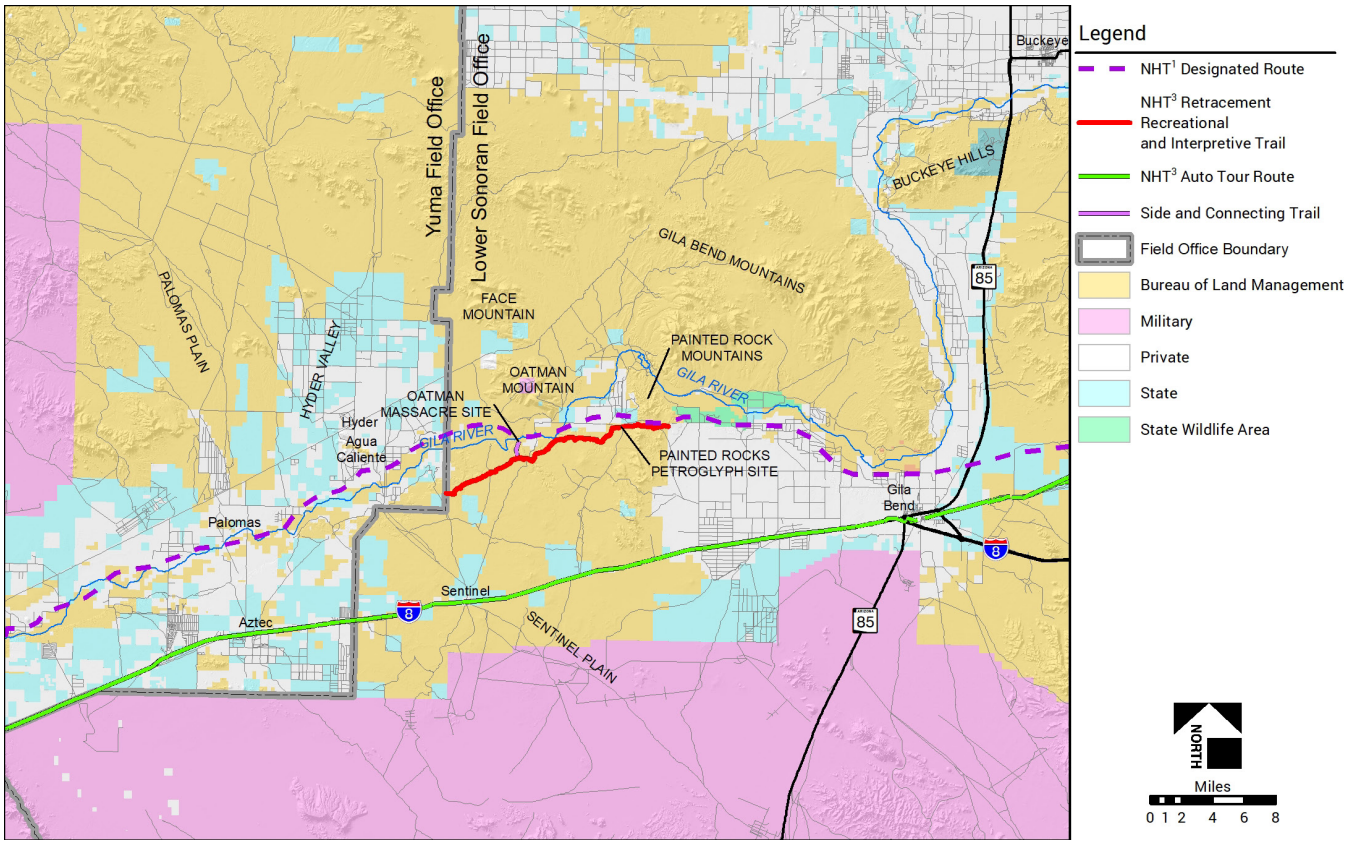
Differences between National Scenic and National Historic Trails

National Scenic Trails and National Historic Trails are both linear features that can be inventoried, assessed, and monitored using the same processes; however, legislative provisions or physical differences between them may call for special approaches. For example, National Scenic Trails are meant to be continuous routes on the ground, while National Historic Trails may be comprised of intermittent high potential sites or segments along the designated route, including satellite landmarks located further away from the trail or trace itself. Throughout the Methodology and Field Guide, these considerations are pointed out to the reader. Each "NHT corridor" is comprised of two and often three types of aspects: NHT[1], NHT[2], or NHT[3].

IAM Minimum GIS Data: Designated National Scenic or Historic Trail (polyline), with segmentation

- **NHT[1] Designated Route:** What and where is the congressionally designated NHT route and associated NHT heritage sites? In the case of the Juan Bautista de Anza NHT, the congressionally designated route follows the Gila River.
- **NHT[2] Heritage Resources:** What and where is the route and sites where history actually occurred? The Anza NHT is a "no trace" route, meaning that no certifiable physical evidence remains of the 1775–1776 Anza Expedition.
- **NHT[3] Recreation and/or Interpretive Trail/Road/Sites:** What and where is the route and associated sites that people can use (i.e., trail/road/ site used for recreation for interpretation)? For the Anza NHT, two recreational routes exist: a non-motorized retracement trail and an Auto Tour Route. In the above example, the recreational retracement route was selected as the focus for inventory to support National Environmental Policy Act analysis.

NHT[2] and NHT[3] often vary from the congressionally designated route. All three NHT aspects can be segmented as part of an IAM. See Appendix B, NHT Corridor Concept, in the Federal Trail Data Standards for more information.



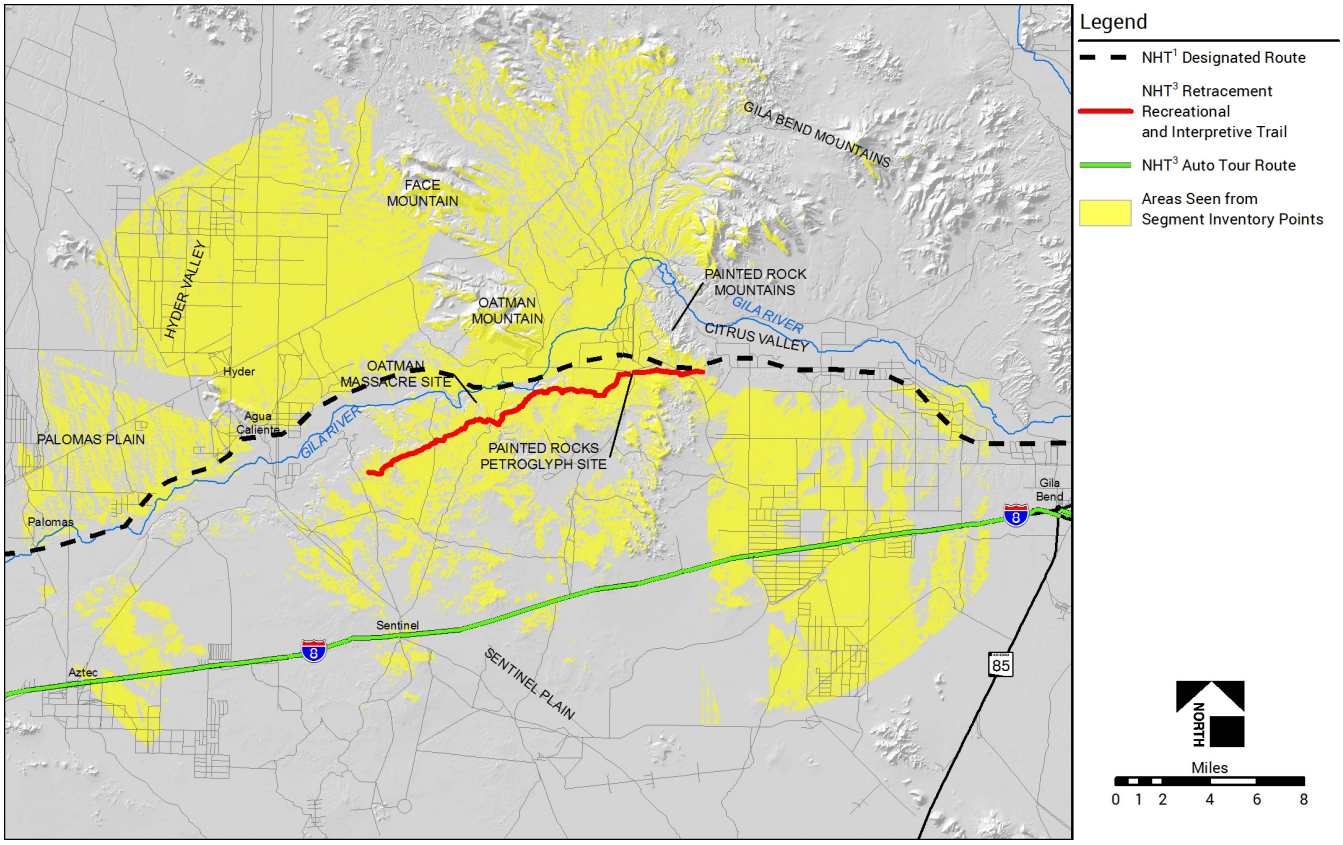
Considerations in segmenting a National Trail along the Juan Bautista de Anza NHT.

3.1.2 Conducting the Visibility Analysis

Computer-aided visibility analyses are conducted to determine landscape features that are seen, seldom seen, and not seen from the National Trail and IPs. Visibility analyses are conducted at defined intervals along the trail segment, and may also be conducted from select IPs. The ID team determines the maximum distance that the visibility model should analyze.

Reconnaissance fieldwork may be needed in order to establish or refine IAU boundaries.

IAM Minimum GIS Data: Viewshed Analysis (raster/polygon)



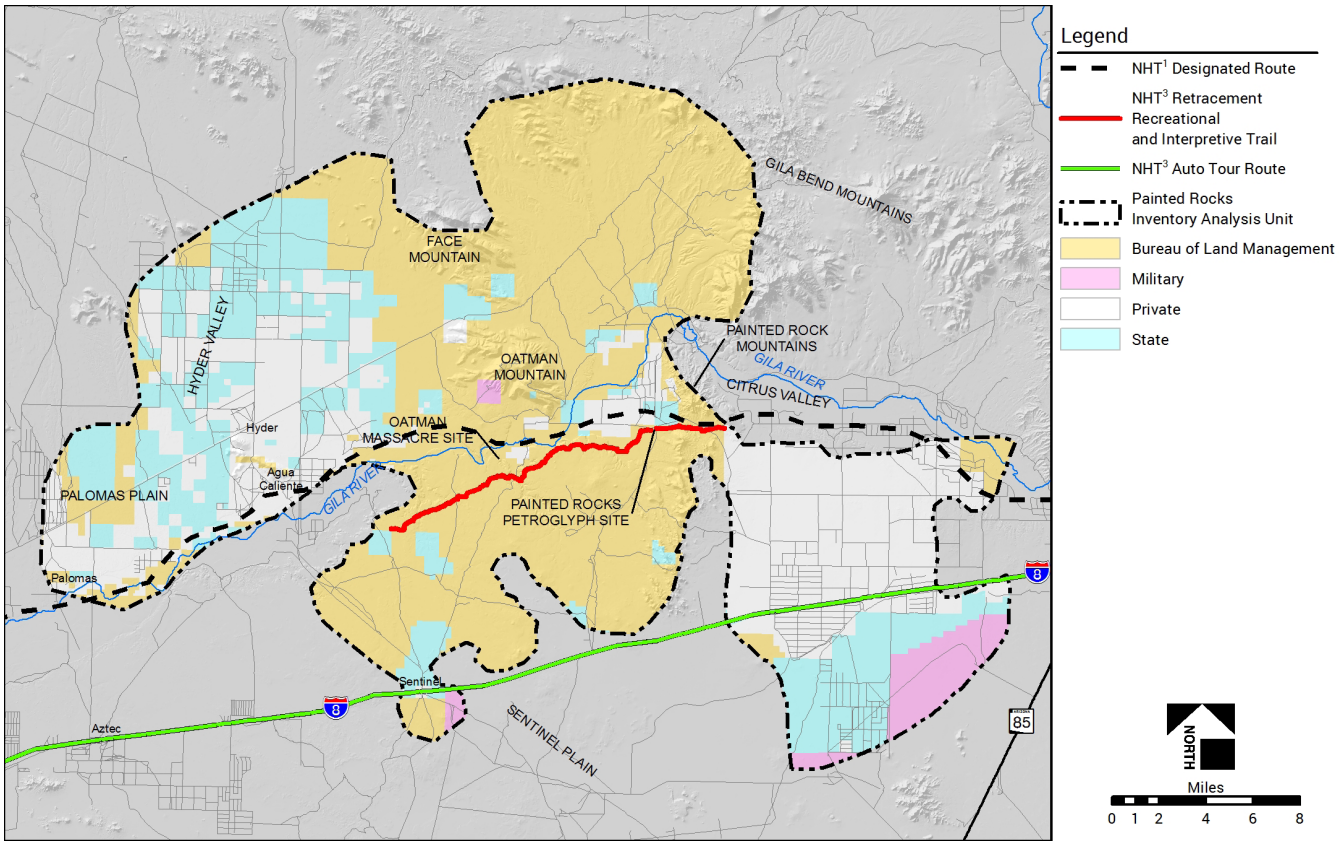
Computer-aided visibility analysis from the selected IPs displays the areas seen from the recreational retracement trail.

3.1.3 Delineating IAUs

High potential historic sites and/or high potential route segments merit particular attention when delineating IAUs.

IAUs help organize the inventory and focus efforts for each National Trail segment through time. The ID team collaboratively draws an outer boundary around the visibility analysis. The IAU should be broad enough to capture data about developments, facilities, and landscape or cultural modifications within the National Trail setting that may support or adversely impact National Trail resources, qualities, values, and associated settings and the primary use or uses of the trail. The IAU boundaries consider land management status and can encompass private lands. High potential historic sites and/or high potential route segments merit particular attention.

IAM Minimum GIS Data: Inventory Analysis Unit (polygon)



The ID team outlined an IAU to encompass most of the areas seen from the recreational retracement trail. There are other configurations that could have been selected, such as encompassing more of the Auto Tour Route along Interstate 8.

3.1.4 Determining Inventory Points

Within the IAUs, the ID team should identify **inventory points** (IPs). IPs are selected to represent typical views, existing recreation and interpretive developments, and critical points that reflect how a trail visitor can interact with the trail, such as overlooks and access points. IPs are also used as long-term monitoring points and should be appropriately placed to monitor for change into the future. IPs that are shared across all or multiple landscape elements are preferred over IPs that serve only one landscape element, as the desired outcome is to integrate resource analysis to understand how all resources collectively affect the trail experience and setting.

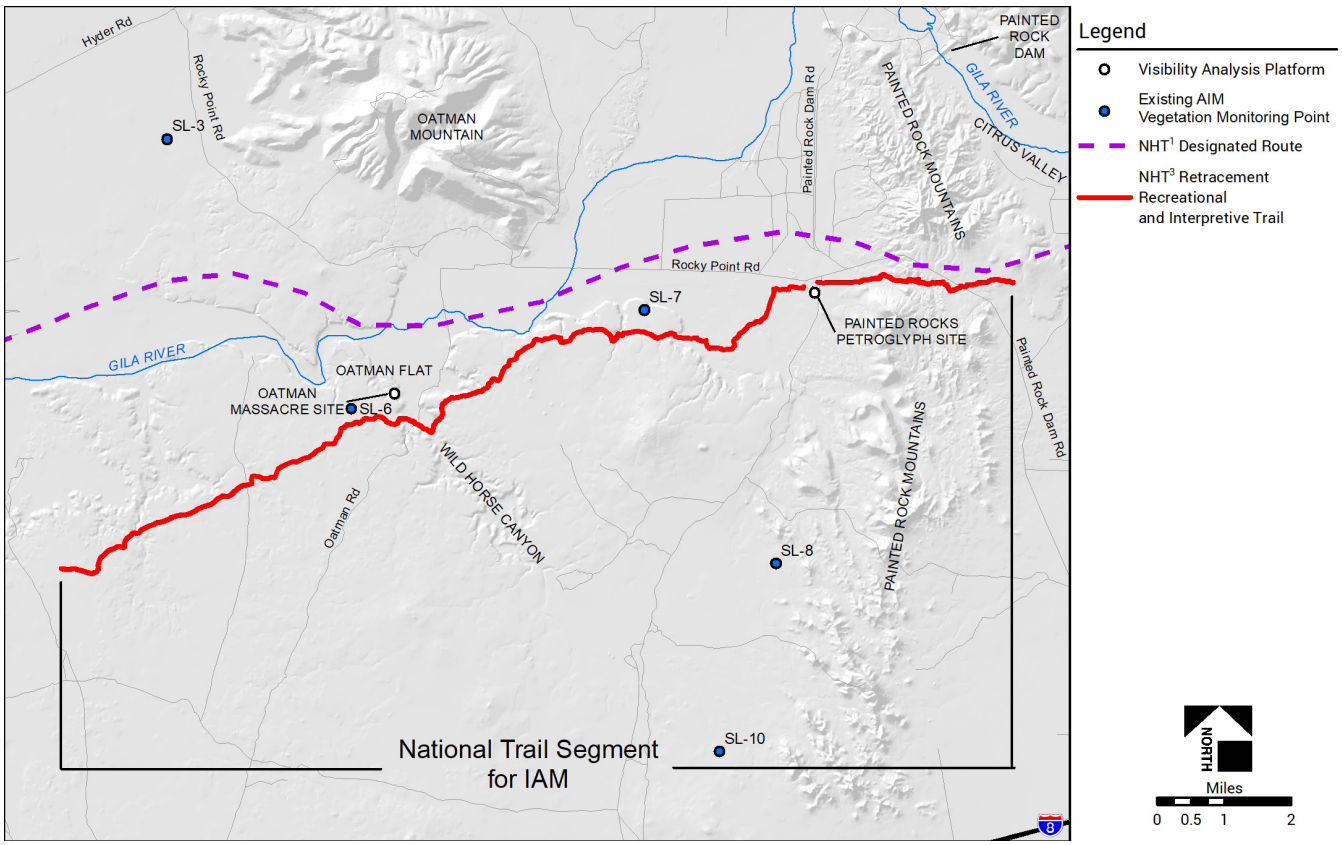
Inventory Point:
Locations from which the physical state of the trail and the condition of its viewshed (setting) are documented. Once selected, future monitoring will always be conducted from these points.

Suitable IPs may already be identified as part of visual, cultural, vegetation, or wildlife inventory/monitoring efforts. Using the same IPs is encouraged. Each IP should be photo-documented to capture the landscape character-defining features, noncontributing cultural features, and other influencing features of the trail.

Remember that National Trail resources can include more than one viewing platform as inputs for the visibility analysis, which may include:

IAM Minimum GIS Data: NSHT IPs (points)

- NHT[1] Designated Routes
- NHT[2] Heritage Routes
- NHT[3] Recreation and/or Interpretive Trails/Roads/Sites
- Associated platforms such as Side and Connecting Trails and National Recreation Trails



In the case of the Juan Bautista de Anza NHT, the ID team selected a National Trail Segment, then located IPs along the non-motorized recreational retracement trail. Existing IPs from vegetation monitoring points, recreation sites, historic sites, or VRIs were considered, and new IPs were added where needed.

3.2 Identifying Best Available Baseline Information and Data Gaps

At the beginning of the inventory, identify the best available scientific sources and thoroughly evaluate them for applicability and relevancy to the inventory effort. Refer to related information presented in Table 1. The baseline data used should be reliable and unbiased.

Always use existing high quality data before intensifying efforts to collect new data. In many cases, existing high quality data may meet the minimum inventory requirements for one or more landscape elements.

ID team specialists should answer the following key questions for each landscape element:

- What are the most reliable, relevant sources of baseline information? (See examples in Methodology Tables 3 through 10; not all sources will be needed for each trail segment).
- What are the limitations of the best available information? (See limitations in Methodology Sections 3.4 through 3.7, and Field Guide Section 2).
- To what extent is the minimum data necessary available? What data gaps with the IAU remain? (See Methodology Table 1, and Field Guide Section 2).
- What inventory methods efficiently **intensify (or intensification)** additional data needed to fill gaps? (See Methodology Table 2 and Sections 3.4 through 3.7, and Field Guide Section 2).

Intensify (or Intensification):

To supplement existing data or information through new data collection for each landscape element.

Inventory of landscape elements along the Arizona Scenic Trail.

3.3 Identifying Appropriate Inventory Methods

Inventory methods, including intensification efforts to address data gaps, should follow complimentary policies and guidance of existing resource programs to the extent relevant. For information regarding policies for BLM administration and management of National Trails and trails under study, including trailwide comprehensive plans, land use plans, and proposed actions, see BLM Manuals 6250 and 6280.

The manuals and handbooks listed in Table 2 are a collection of existing resources with transferrable value to the NSHT IAM process. The NSHT IAM process incorporates methods from these sources, some of which offer fully transferrable methods and data relevant to a specific National Trail landscape element and some that offer partially transferrable methods or data for National Trail landscape elements. For example, BLM program policy tools, such as the VRI, can serve as the foundational method or basis for documenting scenic resources, qualities, values, and associated settings. These established BLM methods should be used in concert with Chapter 3 of BLM Manual 6280 and Sections 3.4 through 3.7 of this methodology to compile a complete inventory and assessment. Transferability of methods used by other agency programs to inventory, assess, and monitor related landscape elements will be discussed in more detail in Sections 3.4 through 3.8 and are summarized in Tables 3 through 10.

Table 2. Established BLM Methods for Landscape Element IAM

Manuals and Handbooks[1]	Scenic	Historic/ Cultural	Recreation/ Travel	Natural
BLM Manual 1734, Inventory and Monitoring Coordination	X	X	X	X
BLM Manual 1626, Travel and Transportation Management			X	
BLM Manual 8100, The Foundations for Managing Cultural Resources		X		
BLM Manual 8110, Identifying and Evaluating Cultural Resources		X		
BLM Manual 8120, Tribal Consultation Under Cultural Resource Authorities		X		
BLM Manual 8140, Protecting Cultural Resources		X		
BLM Manual 8320, Planning for Recreation and Visitor Services			X	
BLM Manual 8400, Visual Resource Management	X			
BLM Handbook 8342-1, Travel and Transportation Management			X	
BLM Handbook 8410-1, Visual Resource Inventory	X			
BLM Handbook 8431-1, Visual Resource Contrast Rating	X			
BLM Handbook 9114-1, Trails	X	X	X	X
BLM Technical Reference 9113-1, Travel and Transportation Management: Planning and Conducting Route Inventories			X	
BLM Assessment, Inventory, and Monitoring Strategy for Integrated Renewable Resources Management (National Operations Center, Denver, CO) and Supporting AIM Technical References				X
Federal Geographic Data Committee, Federal Trail Data Standards, FGDC-STD-017-2011	X	X	X	X

[1] Manuals and handbooks are available online at https://www.blm.gov/policy/manuals; refer to BLM 2007, BLM 2019, and U.S. Department of the Interior 2019. The BLM manuals may provide examples for other agencies, or other agencies may have similar guidance.

3.4 Landscape Element 1 - Scenic

When conducting scenic inventories, follow the guidelines in this section in conjunction with BLM Manual 6280 (Section 3.5.E.1-2) and BLM Manual 8400 Visual Resource Management. Examples of Scenic RQVASs are found in Table 3. The minimum requirements associated with scenic resources are:

- The delineation of a viewshed and associated visual distance zones
- The documentation of scenic quality and identification of public sensitivity as they relate to the National Trail's nature and purposes, resources, qualities, values, and associated settings

The result of the trail's visual extent identified as part of the visibility analysis should be overlaid with existing scenic or visual resource information such as BLM VRI components (scenic quality, inventory observation points, and sensitivity levels) to initially indicate what public sensitivities, scenic qualities, and values exist within each IAU.

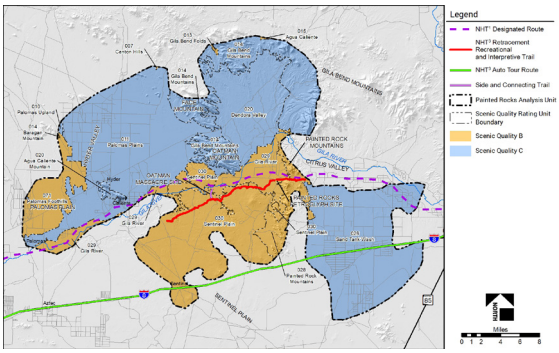
Table 3. Sample Scenic RQVASs

National Trail-related Scenic RQVASs based on the nature and purposes, vision, or significance statements	Relevant IAM Reference Materials and Indicators
Resources	
• Description of the overall landscape character and existing visual conditions* • Visible, distinct landmarks and landscape features	• Visibility analysis • Inventory points • Scenic quality analysis
Qualities	
• Significant scenic or high visual qualities (for NSTs)* • Areas with high scenic quality that support the nature and purposes and/or relative freedom from intrusion within and adjacent to high potential historic sites and high potential route segments (for NHTs)*	• Scenic quality analysis • Information from the National Trail administering agency or trail groups, associations, and other interested parties • Legislation, Feasibility Study, Comprehensive Plan, RMPs
Values	
• Sensitivity or concern levels* • Recreation settings • Setting integrity • Cultural values, such as sense of place	• Information from the National Trail administering agency or trail groups, associations, and other interested parties • News articles or historic controversy regarding maintenance of scenic quality • Legislation, Feasibility Study, Comprehensive Plan, RMPs
Associated Settings	
• Geographic extent of the visual landscape elements that influence the trail experience and contribute to resource protection	• Distance zones* • Seen, seldom seen, and not seen areas*
Primary Trail Use or Uses	
• Diverse recreation activities	• See the Recreation primary use and uses • Information from the National Trail administering agency or trail groups, associations, and other interested parties

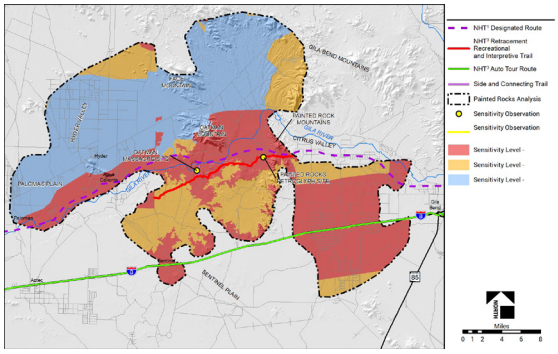
**Data can be incorporated by reference.*

3.4.1 Assessing the Adequacy of Existing Visual Records

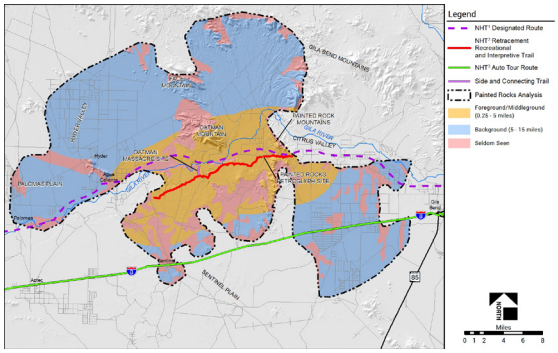
The adequacy of existing records for each visual inventory factor should be evaluated by the ID team. If a VRI is not available or is insufficient to inform the background research, consult the baseline sources listed in Table 4. A National Trail-level VRI may be needed to obtain the minimum information necessary to properly document all visual resources, qualities, values, and associated settings and the primary use or uses that support the nature and purposes of the National Trail. If the existing VRIs (or similar agency method) adequately accounts for the National Trail, no intensification for scenic quality or sensitivity is necessary.



IAM Minimum GIS Data: Visual Resource Inventory Distance Zones (polygon)



IAM Minimum GIS Data: Sensitivity Level Rating Units (polygon)



IAM Minimum GIS Data: Scenic Quality Rating Units (polygon)

Table 4. Best Available Scenic Baseline Data Sources

Reference Data	Source	Format	Extent	Scenic Quality	Visual Distance Zones	Overall landscape character, existing visual conditions	Sensitivity level analysis	Inventory Observation Points	Primary use or uses within viewshed	Areas with high scenic quality/ freedom from intrusion
Existing Field Office VRI	BLM	Reports and GIS	District or Field Office	X	X	X	X	X	X	X
Field Surveys/Inventory	BLM	Qualitative	National	X		X		X		X
RMP and trailwide comprehensive plan	Multiagency	Qualitative	Varies			X			X	X
Desktop analysis	Varies	GIS/Aerial imagery	Varies		X	X		X	X	
Field Office program data, staff professional knowledge	Multiagency	Qualitative	Varies	X		X	X		X	X
Existing EA/EIS	Multiagency	Report	Varies	X		X	X		X	X
Stakeholder/public Input	Varies	Qualitative	Varies				X		X	X
Historical and cultural reference data	Varies	Report/GIS	Varies	X			X	X	X	X
National Trail Feasibility Study	Varies	Reports, GIS data (polygon, polyline)	Varies			X				
RMPs, including amendments	Multiagency	Qualitative	District or Field Office	X	X	X			X	X
Trailwide comprehensive plan	Varies	Reports	Varies			X			X	X

Key: BLM = Bureau of Land Management, EA = Environmental Assessment, EIS = Environmental Impact Assessment, GIS = Geographic Information System, RMP = resource management plan, VRI = Visual Resource Inventory

3.5 Landscape Element 2 - Historic and Cultural

For all National Trails, the historic character or character-defining qualities/features of the trail that encapsulate all visual aspects, features, materials, and spaces associated with the history of the trail-related landscape should be documented (Manual 6280, Section 3.5.E.3-4). Examples of Historic and Cultural RQVASs are found in Table 5.

Strive to document the IAU's historic and cultural authenticity - that is, the capacity of the resources, qualities, values, associated settings, and the primary use or uses to be an accurate representation of a specific time and place revealing meaning and relevance to its context, and displaying a genuine and realistic connection to factual historical events. Authenticity of material objects or intangible heritage like traditional harvesting practices is multidimensional and rarely absolute. Document how authenticity attributes may be intact (such as stone used in original trail construction) while other attributes may be substantially altered (such as the setting). For NHTs, the historical context is the period of significance.

Who has access to Sensitive Data?

All sensitive data, such as locational information found on maps or coordinates, should be carefully maintained and securely stored. Cultural resource inventory and evaluation records, maps, and reports may be withheld from public disclosure when disclosure would threaten the resources. Federal agencies are responsible for maintaining that information in a secure environment. Because the IAM geodatabase contains locational information for highly sensitive archaeological and historical sites, database access is restricted to qualified individuals conducting the inventory and the appropriate BLM Field Office staff. The applicable State Historic Preservation Office and archaeological repository may have access to this geodatabase as necessary.

3.5.1 Gathering Cultural Resource Data

A **cultural resource Class I records search** of previously conducted cultural resources inventories and previously recorded archaeological sites, buildings, and structures should be undertaken to identify the presence of locally, regionally, and nationally significant National Trail-related historic resources. The Class I records search should include a literature review, file search, and data gathering (see BLM Manual 8110). Baseline sources are listed in Table 6.

Archaeological site files and inventory reports available at the applicable archaeological site files repository, at the State Historic Preservation Office, in the National Register of Historic Places Information System database, and at the appropriate administrative office(s) should be reviewed. Resources gathered from the field offices to support an inventory strategy can include:

- Land use plans
- Previously prepared trail inventories
- Feasibility studies
- Historic contexts
- Cultural resources inventory reports
- Historic maps
- General Land Office maps and records
- Ortho-photo quads
- Aerial photographs
- Historic diaries, letters, and images
- Other archival records

Class I Records Search:

Compilation and analysis of all reasonably available cultural resource data and literature.

Class III Inventory:

An intensive field survey of a project area to determine the presence or absence of cultural activity.

In addition to the reviewing the records and resources identified above, consult with trail historians, trail groups, and trail users' descendants who may have additional information useful for the inventory record.

Although each trail inventory project is unique, in general the parameters of these record searches include the entire IAU or a sufficient research distance for the extent of a **Class III inventory** if needed.

Table 5. Sample Historic and Cultural RQVASs

National Trail-related Historic and Cultural RQVASs based on the nature and purposes, vision, or significance statements	Relevant IAM Reference Materials and Indicators
Resources	
• Historic buildings and standing structures • Archaeological sites • Isolated features/artifacts • Historic trail trace	• Previous research (Class I) reports* • Pedestrian inventory (Class II or III) reports* • NRHP eligibility reports* • NHT condition assessment • Inventory point photography • Verification of high potential historic sites or high potential route segments (for NHTs)*
Qualities	
• Aspects of integrity (workmanship, design, association, etc.) • Vicarious experiences (for NHTs)*	• NRHP eligibility reports • Setting integrity • Previous research (Class I) reports* • Historical contexts* • Nature and purposes, vision, or significance statements • Historical contexts*
Values	
• History • Cultural influences • Evolution of trail uses	• Nature and purposes, vision, or significance statements • Historical contexts* • Information from the National Trail administering agency or trail groups, associations, and other interested parties* • Legislation, Feasibility Study, Comprehensive Plan, RMPs • Descriptions from historical journals
Associated Settings	
• Historic landscape versus current landscape • Contributing landmarks and landscape features* • Vicarious experiences (for NHTs)*	• Inventory point photography • Viewshed analysis • Setting integrity* • Comparative historic photography • Descriptions from historical journals
Primary Trail Use or Uses	
• Types of outdoor recreation • Heritage tourism • Interpretation and education • Other historic and cultural primary use or uses that occur within the viewshed, including National Trail-related scientific uses, historic interpretation, protection, and recovery*	• Nature and purposes, vision, or significance statements • Information from the National Trail administering agency or trail groups, associations, and other interested parties* • Legislation, Feasibility Study, Comprehensive Plan, RMPs

**Minimum BLM Manual 6280 inventory requirements*

Table 6. Best Available Historic and Cultural Baseline Data Sources

Reference Data	Source	Format	Extent	Traditional Cultural Properties	NRHP Eligibility	High potential historic sites (for NHTs)	High potential route segments (For NHTs)	Nationally significant historic re-sources	Regionally significant historic re-sources	Locally significant historic re-sources	Existing inventory data	Historic character	Viewsheds of High potential historic sites and segments	Existing condition of historic landscape	Contributing landscape features, including historic trail modifications or engineering features
BLM Field Office Cultural Program Files	BLM	Reports, site forms, and GIS data	Field Office	X	X	X	X	X	X	X	X	X			X
SHPO files/database	SHPO	Reports, site forms, and GIS data (usually polygon)	State	X	X	X	X	X	X	X	X	X			X
NRHP	NPS	Site data, GIS data (points and polygons)	National		X	X	X	X							
State Register of Historic Places	State	Site data	State			X	X								
Tribal consultation	Tribe	Ethnographic	Regional; varies by Tribe	X											
Historic contexts	SHPO, Professional Councils, Universities	Reports, site data, GIS data (point and polygon)	Regional	X		X	X	X	X	X	X	X	X		X
Archival research (microfiche, micro-film, newspaper archives, land patents, etc.)	Varies	Microfiche, microfilm, Newspaper archives, photographs, land patents	Local–regional			X	X	X	X	X		X			X
Maps (General Land Office, U.S. Geological Survey Historical Topographic Map Collection, Sanborn maps, historical maps, etc.)	Varies	Maps	Varies			X	X	X	X						X
Trail Association and volunteers	Varies	Report	Trail corridor			X	X							X	X
National Trail Administrator files	BLM	Report, firsthand knowledge	Trail corridor			X	X							X	X
National Trail Feasibility Study	Varies	Reports, GIS data (polygon, polyline)	Varies	X	X			X						X	
RMPs, including amendments	Multiagency	Qualitative	Field/District Office	X	X			X	X	X					
Trailwide comprehensive plan	Varies	Reports	Varies	X	X	X	X	X	X						
Field inventory	Varies	Reports, site forms	Localized projects	X		X	X				X			X	X

Key: BLM = Bureau of Land Management, GIS = Geographic Information System, NPS = National Park Service, NRHP = National Register of Historic Places, RMP = resource management plan, SHPO = State Historic Preservation Office

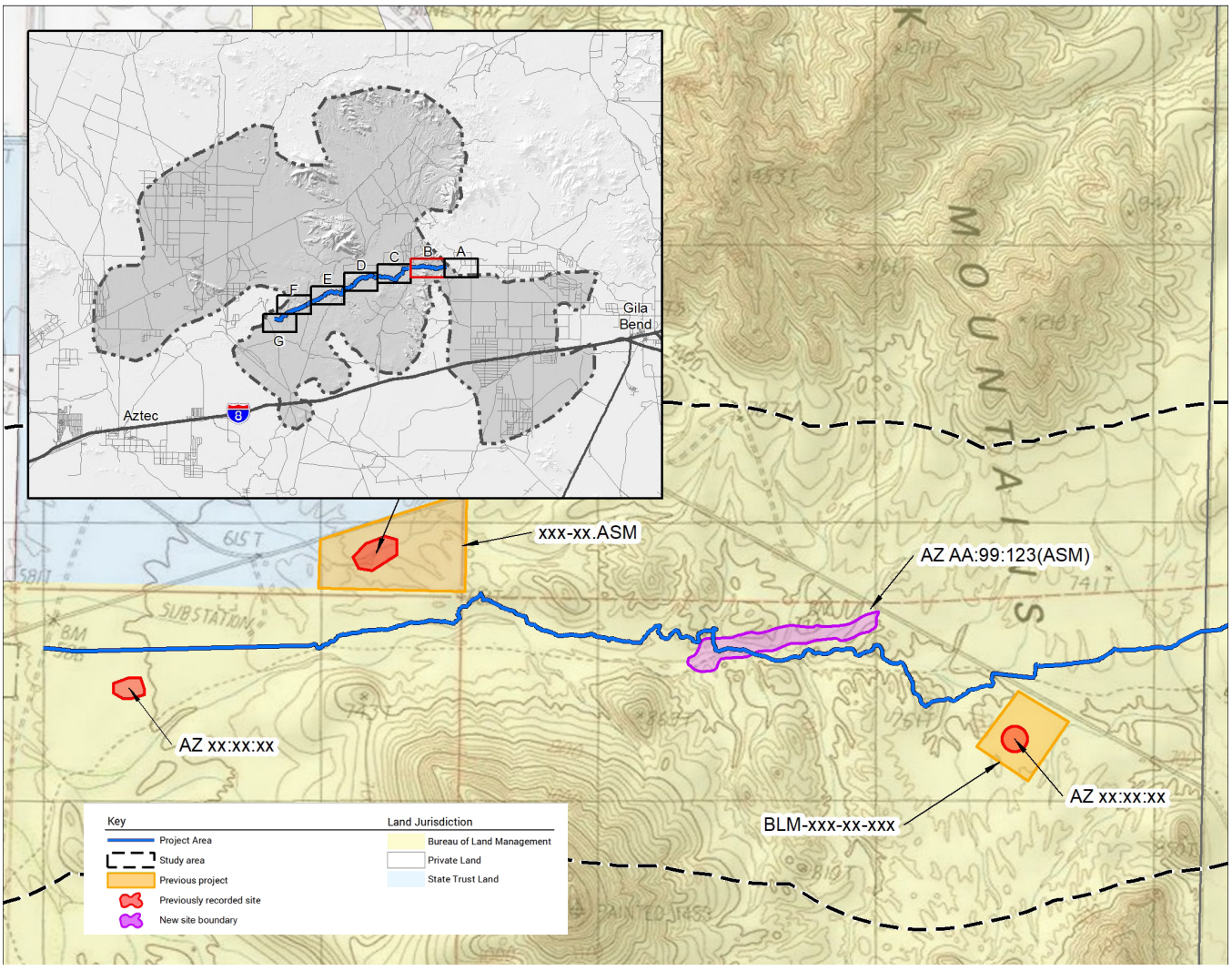
3.5.2 Entering Cultural Data into a GIS Geodatabase

Historic and cultural resource data gathered should be inserted into a GIS geodatabase. The geodatabase will contain all previous projects and previously recorded sites within the subject area.

Once complete, the geodatabase will provide a visual reference for the distribution of known cultural resources within or adjacent to the trail. The geodatabase could also be used to begin the identification of high potential sites and route segments (where not previously identified in a trailwide comprehensive plan). Further, such information can be overlaid on both a standard 7.5-minute U.S. Geological Survey (USGS) topographic quadrangle and a high-resolution USGS aerial photograph for use in field verification of NHT traces.

IAM Minimum GIS Data: Cultural Resource Class I Inventory (polygons)

IAM Minimum GIS Data: Cultural Resource Class II or III Inventory (polygons)*



The cultural resource Class I inventory and literature review identifies previously surveyed resources. Where gaps remain, a sampling strategy is developed to intensify the inventory.

3.5.3 Determining the Level of Cultural Resources Inventory

Investigating these baseline sources will provide a guide by which to implement an appropriate level of inventory. The inventory will be used to locate and verify these significant National Trail-related properties and assess their eligibility for listing in the National Register of Historic Places. The ID team cultural resources specialist will determine what level of inventory is required based on existing local protocol agreements and other guidance. Inventory can range from a simple review of the records to a full Class III inventory of the area of potential effect.

3.5.4. Documenting the Associated Historic and Cultural Settings

Several agency methods are available to inventory and assess the intactness or integrity of the viewshed from the trail, such as:

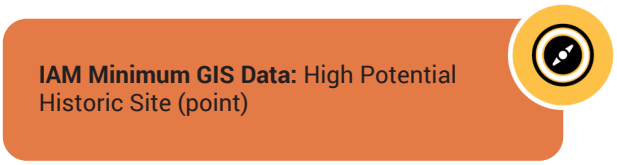
- BLM VRI Scenic Quality Analyses (cultural modification, scarcity rating factors)
- BLM VRM Contrast Ratings
- USFS Existing Scenic Integrity
- NPS Cultural Landscape Inventories

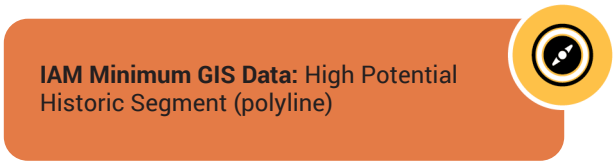
The selected method will depend on the significance of setting (i.e., high potential historic sites or segments) and the IAM staffing resources available. The minimum inventory methods for BLM land are IPs and photography, VRM Contrast Ratings, and narrative that identify the level of baseline contrasts, and the character-defining qualities of the trail. For NHTs only, document the elements that complement, support, or otherwise corroborate the period of historic significance for the trail and those elements that do not fit the period of trail significance or are otherwise visually intrusive. Other land management agencies may use their respective agency methods.

3.5.5 Considerations for National Historic Trails

For many NHTs, the current routes shown in GIS mapping depict only the Congressionally authorized trail route, which does not necessarily reflect true trail alignments. Systematic, comprehensive and reasonable efforts should be made to locate and field verify the NHT corridor, historic traces, high potential historic sites, high potential route segments, and related cultural properties that may be eligible for the National Register. A condition assessment of historic traces should be conducted. See the Field Guide and the FGDC Federal Trail Data Standards, Appendix B NHT Condition Categories for best practices.

In conjunction with these inventories, individual Field Offices may require additional data collection, including reconnaissance survey, subsurface probing or scraping, test excavations, predictive modeling, and remote sensing (e.g., LiDAR, unmanned aerial vehicles, ground-penetrating radar). Historic and cultural resources, qualities, and values include physical remnants such as wagon ruts, artifacts, and gravesites that characterize the historical period of use.





3.6 Landscape Element 3 - Recreation, including Recreational Travel

The minimum inventory for recreation is the identification of:

- Current NSHT recreation demand (i.e., visitor use and trends)
- Current NSHT supply (i.e., recreation services and practices by the managing agency and other service providers)
- Existing NSHT infrastructure (including recreational, interpretive, educational, or travel facilities)
- NSHT opportunities (for recreation, interpretation, education, connectivity and/or manageability)
- NSHT settings (i.e., physical, social, and operational)

How each of the above supports the nature and purposes and RQVASs of the trail should be documented, following the guidelines in this section in conjunction with BLM Manual 6280 (Section 3.5.E.5–6) and BLM Manual 8320, Planning for Recreation and Visitor Services. See Table 7 for example RQVASs.

Vicarious Experience:

The opportunity to experience a historic trail as it may have existed during its period of significance (i.e., presence of visible historic remnants, scenic quality, and relative freedom from intrusion).

Strive to document the transformative experiences created through human interaction with scenic, natural and cultural landscape elements. A National Trail experience should be different than all other trails - the interaction should educate and inspire. Such experiences can be a weeklong, confidence-building wilderness adventure, a first encounter with a night sky free of artificial light, or the emotional and patriotic vicarious response to standing on a historic battlefield or in an early Native American dwelling. Distinctive and transformative experiences should be available on all National Trails. This requires expanding the relevance, access and benefits of National Trails to underrepresented minority groups and communities. The data collected will include opportunities for trail-related recreation experiences such as enjoying natural landscapes or learning about natural history, as well as **vicarious experiences** such as being able to imagine a historical event.

Dog Sledding is a unique primary use along the Iditarod Trail

Table 7. Sample Recreation RQVASs

National Trail-related Recreation and Recreational Travel RQVASs based on the nature and purposes, vision, or significance statements	Relevant IAM Reference Materials and Indicators
Resources	
• Trailheads/campgrounds and associated infrastructure • Visitor centers • Trails • Access points/connections • Signage • Land management jurisdiction	• Field office resource program data, staff, trail partners, professional knowledge • National Survey on Recreation and the Environment* • Concessionaire, outfitter, and guide data • Special Recreation Permits and Special Use Permits* • State parks, fish, and game agencies' data • Trail/Trailhead Logs (e.g., counters or cameras) • Recreation Information Database (RIDB)* • Facility Asset Management System (FAMS)* • Facility Management Software System (FMSS)*
Qualities	
• Variety of recreation activities • Opportunities for public use and enjoyment • Potential vicarious experiences • Visitor capacity	• Stakeholder/ Public Input • Feasibility Study, Comprehensive Plan, RMPs
Values	
• Physical, social and health benefits • Economic benefits • Cultural resources	• Legislation, Feasibility Study, Comprehensive Plan, RMPs • Recreation Setting Characteristics*
Associated Settings	
• Physical, social, and operational settings • All other landscape elements	• Inventory point photography • Viewshed analysis • Setting integrity* • Comparative historic photography • Descriptions from historical journals
Primary Trail Use or Uses	
• Hiking • Mountain Biking • Wildlife watching • Sight seeing/photography • Heritage tourism • Interpretation and education • Auto touring • Camping	• See Table 5. Best Available Recreation and Travel Baseline Data Sources

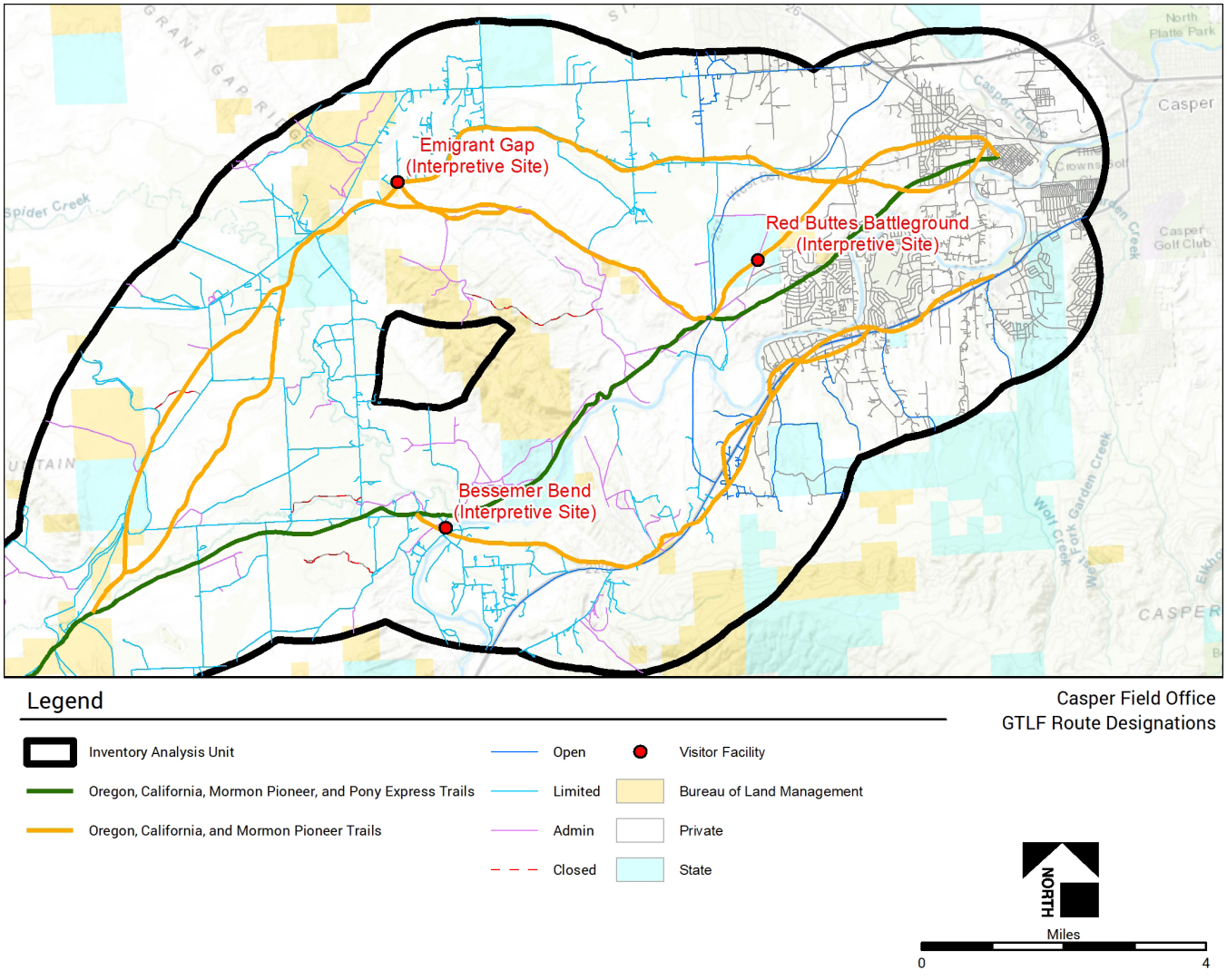
**Data can be incorporated by reference.*

3.6.1 Considerations for National Scenic Trails

For NSTs only, identify recreation opportunities. Such public use opportunities may include continuous, long-distance, and nonmotorized trail experiences through diverse, intact ecosystems, at camping areas, or scenic overlooks, consistent with the nature and purposes and the primary use or uses. It is assumed that primitive and backcountry settings are commonly those settings that are most likely to afford opportunities for maximum recreational potential due to these settings being commonly free of visual intrusions that would detract from the trail experience.

3.6.2 Considerations for National Historic Trails

At high potential historic sites and high potential route segments associated with NHTs, identify recreation use; interpretive/educational opportunities; and opportunities for vicarious experiences. Recreation or interpretive route(s) and/or sites, including potential auto tour routes and connections to specific trail sites and segments, should also be identified.



Route designations, such as open, closed, or seasonal, should be mapped in relation to the National Trail.

3.6.3 Recreational Data Sources

Given that National Trails cross many jurisdictions and that access to and interaction with the National Trails can take many different forms, the amount, type, and source of data can be expansive. Data collected for recreation and recreational travel may be quantitative and/or qualitative in nature, as well as being geospatial, such as BLM Recreation Opportunity Spectrum and recreation setting characteristics.

Data collected should describe opportunities for access, connectivity, and management for potential connecting and side trails, roads, primitive roads, and trails in the area, including those on private lands (see BLM Manual 8353). Access for private landowners should be identified, as warranted.

There is not one concise source for recreation demand and supply across the entire National Trail System. Further, the best available data could be collected by any of several agencies, including the BLM, National Park Service, U.S. Forest Service, State park agencies, or other partners. The most common, best available baseline sources listed in Table 8 can be incorporated by reference. Further detail on pre-field and field inventory steps is outlined in the Field Guide.

Table 8. Best Available Recreation and Recreational Travel Baseline Data Sources

Line #	Reference Data	Source	Format	Extent
1	Recreation Management Area geospatial and monitoring data*	BLM	Reports and GIS (polygon)	RMP
2	Recreation Information Database (RIDB)*	BLM	Report and GIS (point and polygon)	National
3	Recreation Management Information System (RMIS)*	BLM	Report	Organized by RMP>Special Management Area>Site
4	National Visitor Use Monitoring (NVUM)*	USFS	Report	National
5	Systemwide Public Use Reporting System (SPURS) *	NPS	Report	National
6	Facility Asset Management System (FAMS)*	BLM	GIS data (point and polygon)	National
7	Facility Management Software System (FMSS)*	NPS	GIS data (point and polygon)	National
8	National Survey on Recreation and the Environment*	USFS	Report	National
9	Concessionaire, outfitter, and guide data	Varies	Report	National
	Special Recreation Permits and Special Use Permits	BLM	Report	National
10	State parks, fish, and game agencies' data	Varies	Reports	State
11	State comprehensive outdoor recreation plan	Varies	Reports	State
12	Trail/trailhead logs (e.g., counters or cameras)	Varies (often utilized to calculate RMIS, NVUM, SPURS data)	Report and GIS data (point)	Varies
13	U.S. Census Bureau	U.S. Census	Reports	County, State, US
14	Private sector	Varies (e.g., Outdoor Industry Association)	Reports	County, State, US
15	Economic Profile System*	Headwaters Institute/BLM	Reports	County, State, US
16	IMPLAN*	IMPLAN	Reports	Varies
17	State, regional, and local tourism agencies	Varies	Reports	Varies
18	State, regional, and local recreation businesses	Varies	Reports	Varies
19	State, regional, and local chambers of commerce	Varies	Reports	Varies
20	County, Metropolitan, or State Transportation Plans.	Varies	Reports and GIS (polyline)	Varies
21	Ground Transportation Linear Features (GTLF)*	BLM	GIS data (polygon)	National
22	Federal Trail Data Standards (FTDS)*	BLM	GIS data (polygon)	National
23	National Trail Feasibility Study	Varies	Reports, GIS data (polygon, polyline)	Varies
24	RMPs, including amendments	Multiagency	Qualitative	Field/District Office
25	Trailwide comprehensive plan	Varies	Reports	Varies
26	Field office resource program data, staff professional knowledge	Multiagency	Qualitative	Varies
27	Stakeholder/Public Input	Varies	Qualitative	Varies

Key: BLM = Bureau of Land Management, GIS = Geographic Information System, NPS = National Park Service, RMP = resource management plan, USFS = U.S. Forest Service.

	Number of visitors/visits	Visitor use trends	Demographics (types of visitors, where visitors are coming from, etc.)	Types of activities in which visitors participate	Duration of visit	National Trail-related primary use or uses	What the participants and affected communities want from National Trail resource	Economic benefits of tourism	Visitor spending dollars	Recreation Infrastructure/ opportunities for public use and enjoyment (Incl. FTDS category NHT3 and cultural modifications)	Recreation Suppliers	Travel Inventory System (including access and connectivity)
1	X									X		
2										X		X
3	X	X		X								
4	X	X										
5	X	X										
6										X		X
7										X		X
8	X	X										
9	X	X	X	X	X			X	X	X	X	
	X	X	X	X							X	
10	X	X	X	X				X	X	X	X	
11	X	X	X	X	Varies	Varies	Varies	X	X	Varies	X	Varies
12	X	X										
13											X	
14	X	X									X	
15			X					X	X		X	
16	X	X	X	X	X			X	X			
17	X	X	X	X			X	X	X	X	X	
18	X	X	X	X			X	X	X	X	X	
19	X	X	X	X			X	X	X	X	X	
20		X					X			X		X
21										X		X
22										X		X
23	X	X	X	X			X	X		X		X
24		X	X	X		X	X			X	X	
25		X	X	X		X	X	X		X		
26	X	X	X	X	X	X	X	X	X	X	X	X
27	X	X	X	X	X	X	X	X	X	X		

* Data to be incorporated by reference. Existing data standards to be followed and corporate databases updated if additional data is collected for an NSHT IAM effort.

3.7 Landscape Element 4 – Natural

The inventory of natural landscape elements include biological, geological, and other data of scientific value which provide the baseline condition of natural resources, qualities, values, and associated settings of the National Trail (see Table 9). This information provides a basis of comparison for future monitoring efforts and to identify any potentially adverse impacts or needed resource improvements.

The minimum inventory necessary to satisfy Manual 6280 (Section 3.5.E.7–8) includes three steps:

1. A review of rangeland inventory, monitoring, and evaluation reports for grazing allotments (or similar) within the IAU. Identify those that are meeting or moving toward rangeland health standards.
2. If reliable indicators of land health and professional judgment demonstrate that evaluation areas are not meeting or not making significant progress toward meeting standards, complete a natural resource methodology similar to the BLM's Assessment, Inventory, and Monitoring (AIM) strategy (see https://aim.landscapetoolbox.org/ or Toevs et al. 2011).
3. Identify management opportunities to improve the natural resources, qualities, values, and associated settings that are relevant to the nature and purposes of the National Trail.

The AIM strategy was developed by BLM and partner agencies to provide a consistent inventory and monitoring protocol for biological field efforts to document natural resource conditions. Relevant core methods should be implemented to collect data that supports or promotes the National Trail nature and purposes or recreation experiences, including vicarious experiences for NHTs, specific to land and water resources. This can include vegetation, geologic features, associated habitats for wildlife, and the supporting ecological components of soil and water.

The National Trail IAM Methodology draws from the interagency AIM strategy for natural resources. The AIM strategy was developed by BLM and partner agencies to provide a consistent inventory and monitoring protocol for biological field efforts to document natural resource conditions.

The AIM strategy includes steps to:

- Document the distribution and abundance of natural resources on public lands
- Determine resource conditions
- Identify natural resource trend or change

To achieve this, BLM has identified a series of core terrestrial and aquatic indicators relevant to many different ecosystems and land uses, along with standard measurement methods (see BLM Technical Note 440, Technical References 1735-1 and 1735-2 for further information). These data are captured electronically and stored in national databases that facilitate access and analysis. Utilizing an AIM strategy or other appropriate established monitoring protocol for resources not accounted for in the AIM core methods, such as wildlife, can maximize the ID team's efficiency in meeting multiple objectives. For example, AIM data can be used to prioritize where to conduct land health standard assessments, determine effectiveness of management actions including land treatments, and identify data that is especially relevant to the National Trail's nature and purposes.

Table 9. Sample Natural RQVASs

National Trail-related Natural RQVASs based on the nature and purposes, vision, or significance statements	Relevant IAM Reference Materials and Indicators
Resources	
• Topographic Features • Geology • Soils • Vegetation • Water • Wildlife	• See Table 6. Best Available Natural Baseline Data Sources.
Qualities	
• Natural Habitat • Ecological Diversity • Intactness (as compared to historic condition for NHTs)	• Natural Heritage Programs • Level III and Level IV Ecoregions of the Continental United States • Major Land Resource Areas • Comparative historic photography
Values	
• Nature Appreciation • Habitat Protection	• Legislation, Comprehensive Plans/RMPs • Nature and purposes • Information from the National Trail administering agency or trail groups, associations, and other interested parties
Associated Settings	
• Geology • Vegetation • Climate • Historic landscape versus current landscape	• Legislation, Comprehensive Plans/RMPs • Natural Heritage Programs • Localized, Resource Specific Field Surveys • Inventory point photography • Comparative historic photography • Descriptions from historical journals
Primary Trail Use or Uses	
• Outdoor Recreation • Wildlife Viewing • Interpretation and Education	• Nature and purposes, vision, or significance statements • Information from the National Trail administering agency or trail groups, associations, and other interested parties • Field office resource program data, staff professional knowledge

Aerial imagery, topographic maps, geospatial data, locally collected field data, and reports such as ecological site descriptions and air quality attainment can all be useful tools for conducting remote natural landscape element inventories. Natural landscape element inventories should follow the minimum inventory requirements for each BLM resource program to the greatest extent practicable. Common best available baseline sources are listed in Table 10. Efforts should focus on the resource datasets that have been identified as contributing to the nature and purpose of each National Trail.

Remote data collection is an effective method for collecting comprehensive natural resources inventories across larger project areas such as trail corridors or IAUs. Compiling and reviewing existing data and reports from prior inventories, monitoring efforts, and national databases or mapping tools avoids duplicating efforts and allows inventories to be conducted (or started) remotely if sufficient information is available (e.g., ecological site descriptions, soil surveys, GIS base-layer vegetation mapping).

Conducting vegetation data collection as part of a natural landscape element inventory

Table 10. Best Available Natural Baseline Data Sources

Reference Data	Source	Format	Extent	Forest and rangeland health	Noxious or invasive species	Threatened or endangered species	Habitat	Soil, vegetation, water, air, or riparian	Physical representation of landscape	Landforms	Landscape–defining characteristics	Extent of landscape settings
Landfire Vegetation Type Data Products	USGS	GIS data (raster)	National		X		X	X	X		X	X
National GAP Land Cover Data Portal	USGS	GIS data (raster)	National		X		X	X	X		X	X
Ecological Site Descriptions	NRCS	Reports and GIS data (polygon)	Regional	X			X	X				
BLM AIM Program	Interagency	Reports and GIS data (point)	Site specific	X	X	X	X	X				
Field Office Rangeland Management Program	BLM	Reports and GIS data (point and polygon)	Site specific	X	X		X	X			X	
Threatened and Endangered Species Critical Habitat	USFWS	GIS data (polygon)	National			X						X
Information for Planning and Consultation (IPaC)	USFWS	Reports	National			X						X
Natural Heritage Programs	State	Reports and GIS data (polygon)	Statewide		X	X		X	X	X	X	X
Fish and Game Program Wildlife Distribution	State	GIS data (polygon)	Statewide			X	X		X		X	X
Web Soil Survey	NRCS	GIS data (polygon)	Regional	X			X	X			X	X
Geological Survey Maps	USGS	GIS data (polygon, raster)	Regional				X	X	X	X	X	X
National Hydrography Dataset	USGS	GIS data (line, point and polygon)	National				X	X			X	X
National Wetlands Inventory	USFWS	GIS data (polygon)	National	X			X	X			X	X
Level III and Level IV Ecoregions of the Continental United States	EPA	GIS data (polygon)	National						X			X
Major Land Resource Areas	NRCS	GIS data (polygon)	National						X	X		X
Topographic Maps and BLM 100K Quad Maps	Interagency	Maps (digital and hard copy)	National						X	X	X	
Localized, Resource Specific Field Surveys	BLM	Reports and GIS data (line, point and polygon)	Site specific	X	X		X	X	X	X	X	X
National Trail Feasibility Study	Varies	Reports, GIS data (polygon, polyline)	Varies						X			
RMPs, including amendments	Multiagency	Qualitative	Field/District Office	X	X	X	X	X	X			
Trailwide Comprehensive Plan	Varies	Reports	Varies	X	X	X	X	X	X	X	X	X
Field office resource program data, staff and trail partner professional knowledge	Multiagency	Qualitative	Varies	X	X	X	X	X	X	X	X	X

Key: AIM = Assessment, Inventory, and Monitoring; BLM = Bureau of Land Management; EPA = Environmental Protection Agency; GIS = Geographic Information System; NRCS = Natural Resources Conservation Service; RMP = resource management plan, USFWS = U.S. Fish and Wildlife Service; USGS = U.S. Geological Survey

Surveying emigrant wagon swales along the Oregon NHT - Camp Guernsey, Wyoming

3.7.1 Considerations for National Scenic Trails

For NSTs, the physical representation of desert, marsh, grassland, mountain, canyon, river, forest, or other areas are important components of a trail's resources, qualities, values and associated settings, as well as its nature and purposes, and should be included in the inventory of the natural resources landscape element. Physiographic regional maps such as the U.S. Environmental Protection Agency's Level III and IV Ecoregions of the United States and Natural Resources Conservation Services Major Land Resource Areas can be used to characterize large areas. Site specific vegetation types can be determined using data from the AIM strategy, if available; the USGS Gap Analysis Program; or other raster vegetation mapping data sources.

Landforms that exhibit significant characteristics of the physiographic regions of the area should also be included in the inventory. Aerial imagery, digital elevation mapping, geographic name information systems, and topographic maps from USGS and BLM (100K maps) can be used remotely to inventory and document the landforms that exhibit significant characteristics of the physiographic regions within the IAU.

3.7.2 Considerations for National Historic Trails

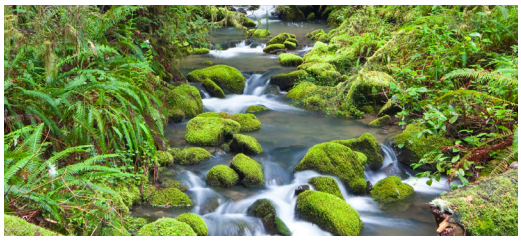
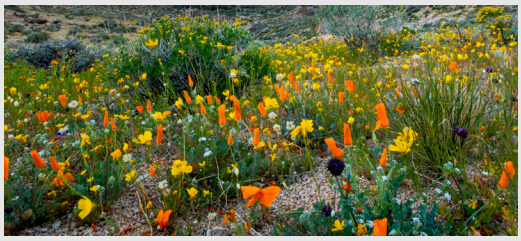
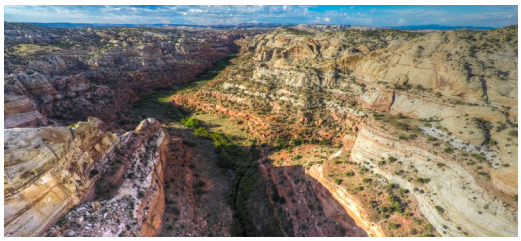
For NHTs, the natural settings, or the geographic extent of the natural resources that influence the trail experience, should also be documented in the natural resources landscape element inventory. The integrity of the natural resources as compared to the historic period should be noted. These include landscape-defining characteristics such as prominent or distinctive landforms and landmarks or landscape features identified by the original trail users.

3.8 Other Landscape Elements

"Other" landscape elements not described above may or may not be present within the viewshed. Some may be compatible with the National Trail's nature and purposes, while others may be incompatible if they detract from the nature and purposes of a designated National Trail and hinder or interfere with the trail experience.

Existing land uses and valid existing rights should be documented. This includes documenting case file or reference numbers and a description of the right or use (e.g., its term and extent) and the right or use depicted on a georeferenced map. While not providing an exhaustive list, Tables 11 and 12 identify other landscape elements by category, along with inventory methods and effective management practices.

Table 11. Examples of "Other" Elements (Resource-Based)

	Resource/Resource Use	Inventory Method (Source)	References/BMPs
	Lands with wilderness characteristics	Map inventoried areas (BLM Inventory Forms)	BLM Manuals 6310, BLM Manual 6320
	Night skies	Measure light pollution (NPS)	https://www.nps.gov/subjects/nightskies/practices.htm
	**Natural sounds**	Measure acoustic environment (NPS)	https://www.nps.gov/subjects/sound/soundpreservation.htm
	**Natural smells**	Field surveys	
	**National Conservation Lands, Congressional and Presidential Designations** (Wilderness Areas, National Monuments, etc.), Special Designations (ACECs, WSRs, WSAs, Roadless Areas)	Map special designations (Resource and Lands Specialists)	BLM Manual 6100 (NLCS), BLM Manual 6220 (NLCS Designations), BLM Manual 1613 (ACEC), BLM Manual 6400 (WSR), BLM Manual 6630 (WSA), BLM Manual 6340 (Wilderness Areas), 2001 Roadless Rule

Key: ACEC = Area of Critical Environmental Concern, BLM = Bureau of Land Management, NLCS = National Landscape Conservation System, NPS = National Park Service, WSA = Wilderness Study Area, WSR = Wild and Scenic River

Table 12. Examples of "Other" Landscape Elements (Use-Based)

	Resource/Resource Use	Inventory Method (Source)	References/RMPs
	Grazing infrastructure	Map grazing allotments, fences, gates (Resource Specialists)	BLM Manual 4100
	Minerals (e.g., surface, subsurface and other interests)	Map existing mineral development (Resource Specialists); identify areas available to leasing (RMPs)	BLM Manual 2881
	Lands and realty (e.g., communication sites, utility ROWs)	Map designated ROWs, utility corridors, and communications (Resource Specialists); identify ROW Avoidance and Exclusion Areas (RMPs)	BLM Handbook 8431-1
	Renewable energy (e.g., wind farm, solar field)	Map existing facilities (Resource Specialists); identify Renewable Energy Avoidance and Exclusion Areas (RMPs)	BLM Handbook 8431-1

Key: ACEC = Area of Critical Environmental Concern, BLM = Bureau of Land Management, NPS = National Park Service, RMP = resource management plan, ROW = right-of-way, WSA = Wilderness Study Area, WSR = Wild and Scenic River

4. CONDUCTING AN INVENTORY FOR TRAILS UNDER STUDY

Designating a National Trail is the responsibility of Congress and typically takes from 5 to 15 years. Until Congress takes action, Federal agencies should maintain the significant resources, qualities, values, and associated settings of trails that are under study or that have been recommended as suitable. Identify and document these trails using the same protocols outlined in Section 3, Conducting the National Trail Inventory and Chapter 3 of BLM Manual 6280, Congressionally Designated National Trails – Inventory. This inventory is used by the BLM in land use planning and implementation-level decisions, and can support feasibility study findings.

No formal nature and purposes statements are available for trails under study or that have been recommended as suitable, except for what might be detailed in a feasibility study. Additionally, a trail management corridor is not developed through a land use plan until after congressional designation. Since neither are available to guide the inventory, consider data collection parameters that represent the foundational resources, qualities, values, and associated settings and the primary use or uses of the trail that initially led to the recommendation. Work should be coordinated closely with the agency that is administering the feasibility study and should be focused on priority resources, qualities, values, and associated settings identified by agency resource specialists and/or the public and that are important to the users' experience of the trail.

The objective of an inventory for trails that have not yet been designated is to provide a high-level summary of the types of resources present to help support trail protection until a decision about designation has been reached. For example, rather than identifying each wildlife species with potential to occur in the area, it may be sufficient to identify the overall ecosystem and types of general habitat present. Similar to National Trails, capturing baseline conditions on the ground—through a field monitoring form and/or qualitative monitoring such as taking photographs at IPs—is an important component for inventorying a trail under study or recommended as suitable.

The collected information should be maintained and updated in a case file and in data management systems.

Assessing trail features along the historic Butterfield Overland Trail that is undergoing a feasibility study.

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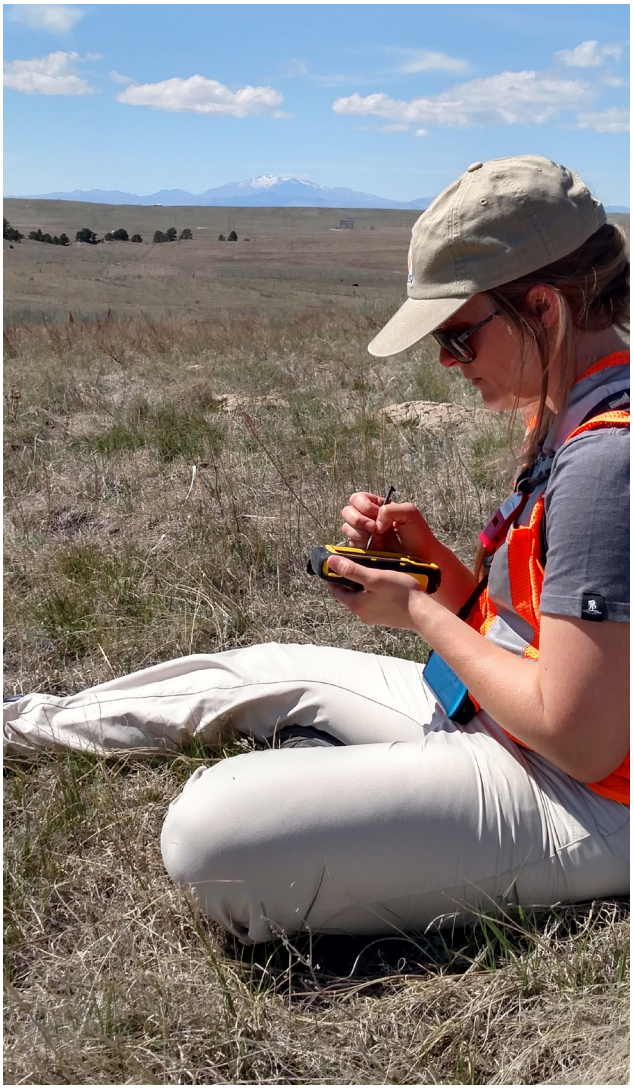
5. ASSESSING AND USING THE NATIONAL TRAIL INVENTORY

The ID team assesses inventory results in two ways: individually by landscape element, and then combined so they can be assessed cumulatively. This is done so that the ID team can clearly understand, describe, and portray the overall condition, presence, and extent of the National Trail's resources, qualities, values, and associated settings and their relationships to the primary use or uses of the trail (see assessment criteria in Table 13).

For example, landscape element inventory results for a segment of a NHT may reveal above-average scenic quality (scenic); good accessibility for the public (recreation); a known location for the trail with physical traces (historic and cultural); adjacency to a rare vegetation type and natural springs (natural resources); and presence within a National Conservation Area (other). While these individual landscape element inventory results are each interesting on their own merits, when combined, the cumulative results can point to important overall findings such as locations that afford a high-quality recreational experience or sites in need of resource protection or enhancement.

In a different example, individual landscape element inventory results for a NST segment with average scenic quality (scenic) and common biological resources (natural) may not warrant maximum resource protection. However, National Register-eligible sites (historic and cultural) and proximity to an urban population (other) could offer an interpretive opportunity for the public (recreation).



Collecting inventory data along the Oregon Trail — Camp Guernsey, Wyoming.

5.1 Nature and Purposes

Through the inventory assessment process, a key outcome is concluding the level to which the resources and uses present support or detract from the nature and purposes of the National Trail. This information is vital to understanding and describing, for example, adverse or beneficial impacts from a proposed project and the extent to which it substantially interferes with the nature and purposes.

A succinct list of landscape element assessment indicators should be recorded for future monitoring.

Similarly, the assessment identifies the condition, presence, and extent of the resources, qualities, values, and associated settings that should be safeguarded and monitored, especially in advance of establishing a National Trail Management Corridor within a land use plan.

5.2 Landscape Elements

At a minimum, inventory results for each individual landscape element should be summarized by the resources, qualities, values, associated settings, and primary use or uses in narrative, maps, photographs and/or tables (see Field Guide, Section 2).

The assessment should briefly recommend monitoring objectives such as the acceptable levels and types of change to baseline conditions and which indicator data should be collected for each landscape element in the future.

5.2.1 Improving Management

The baseline inventory provides substantial information not available previously to make better decisions and on-the-ground management to better achieve National Trail goals. Having said that, an inventory does not make decisions, nor is an assessment a decision document. Assessing the inventory results helps the ID team identify management opportunities and adaptive management strategies. Where these are allowable in an agency's land use plan, they can be prioritized and implemented by the ID team in consultation with land managers. Most inventory and assessment findings will inform improved stewardship decisions that can be readily acted upon by the land manager or trail partners.

Then, as monitoring continues, managers do not simply update a baseline—they determine how conditions are improving towards the desired future condition. Monitoring indicators are established that can inform trends in threats, risks, and conditions.

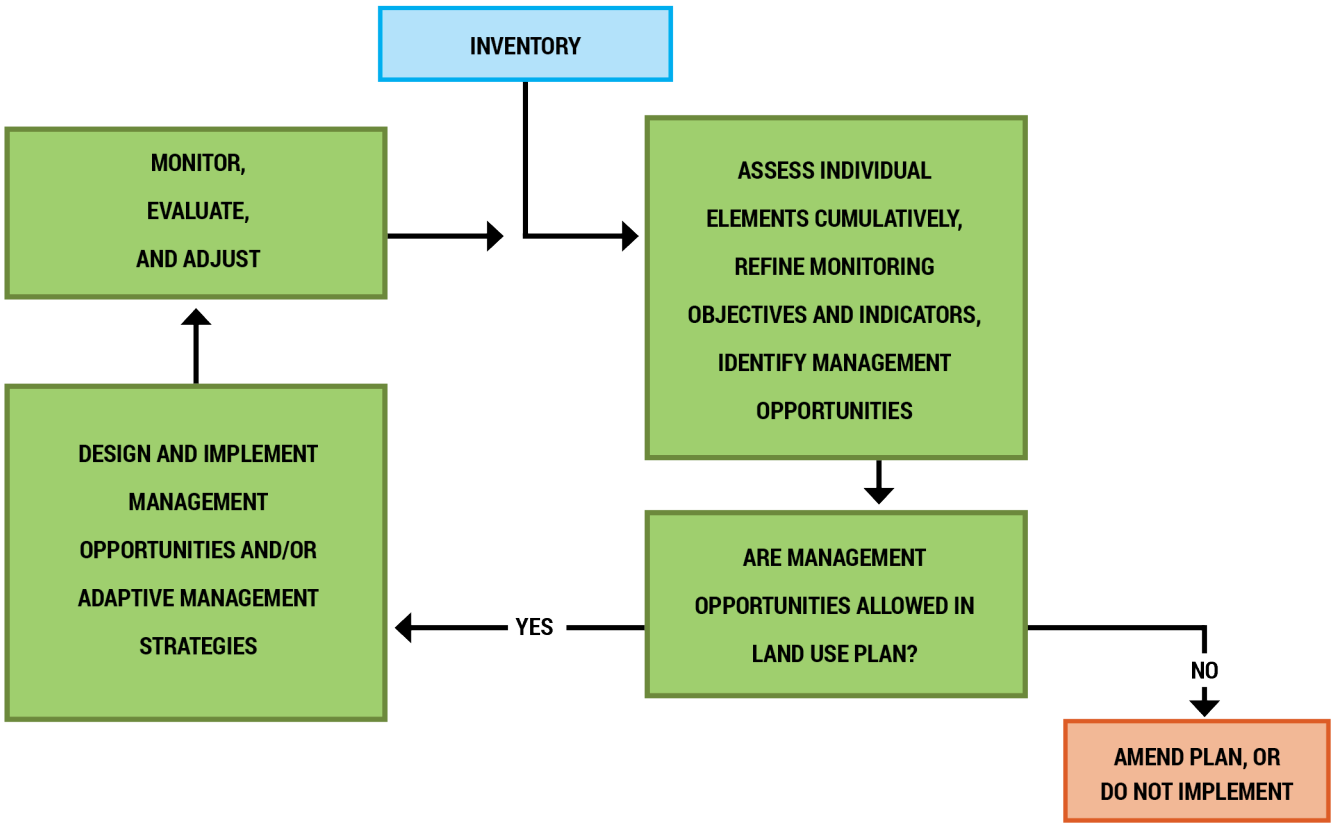


Figure 3. Diagram of the Adaptive Management Process

5.3 Inventory and Assessment Reporting

The ID team lead should report the findings and recommendations to agency managers. The ID team leaders should work with agency managers to determine which partners need to be sent the IAM findings, and what information is appropriate to share.

Federal Protection Components:

Selected high potential historic sites and high potential route segments and other land- and water-based components of a designated NHT located on federally owned land that meet the criteria listed in Sections 3 and 12 of the National Trails System Act, and are identified in trailwide comprehensive plans, land use plans, and implementation plans.

For NHTs, data regarding possible Federal Protection Components, including high potential historic sites and high potential route segments identified through the inventory process, should be provided to the National Trail administering agency for inclusion within updates to the trailwide comprehensive plan.

Table 13. Cumulative Assessment of NST and NHT Landscape Elements

National Scenic Trails	National Historic Trails
◊ The presence of unique landforms and the degree to which the landform exhibits significant characteristics of the physiographic region ◊ Sustainable and premier trail-related opportunities ◊ High scenic values ◊ Relative freedom from intrusion ◊ Natural conditions, scenic and historic features, and primitive character of the trail area ◊ Sustainable trail and resource condition ◊ Opportunities for high-quality, primitive nonmotorized recreation experiences, including capability to provide campsites, shelters, and related public use facilities and continuous and sufficient public access ◊ Absence of highways, motor roads, mineral-rich areas, energy transmission lines, commercial and industrial developments, range fences and improvements, private operations, and any related foreseeable activities ◊ Human health and safety	◊ The presence and intactness of the original trails or routes of travel of national historic significance ◊ The presence and intactness of the historic route and historic remnants and artifacts ◊ Sustainable and premier trail-related opportunities ◊ Selected land- and water-based components ◊ Opportunities to maximize vicarious experiences and resource protection ◊ Presence of Federal Protection Components, including: ◊ *High potential historic sites.* Opportunities to interpret the historic significance of the trail during its period of major use and to identify and protect (NTSA Section 3[a][3]) the visible historic remnants and scenic quality and to provide relative freedom from intrusion (NTSA Sec. 12[1]) ◊ *High potential route segments:* opportunities for high-quality recreation experiences, identify, and protect [NTSA Section 3(a)(3)] the scenic integrity of the trail setting, and afford opportunities for vicarious experiences (NTSA Section 12[2]) ◊ Opportunities for a developed trail to meet objectives ◊ Properties potentially eligible for the NRHP ◊ Human health and safety

Key: NRHP = National Register of Historic Places, NTSA = National Trails System Act

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Monitoring should build off the inventory and assessment efforts using the same ID team, the same data collection methods, and the same assessment indicators. In addition to the recommendations in Section 2 of this methodology—Initiating an IAM Process—the following best practices will improve National Trail monitoring efforts.

6.1 Initiating a Monitoring Effort

Monitoring efforts follow the same steps as the inventory. They are conducted by ID teams to ensure representation for Landscape Elements and for the coordination of personnel and funding. The initial inventory is the basis of the monitoring plan. A monitoring plan is established early on to foster a consistent approach and practice through time by identifying which specific data indicators to document within each IAU and the procedures to follow when collecting and archiving the data. A monitoring plan aids future efforts to include the appropriate specialists, adopt a frequency (monitoring intervals) for continued integration of Landscape Element information, and anticipate resources needed.

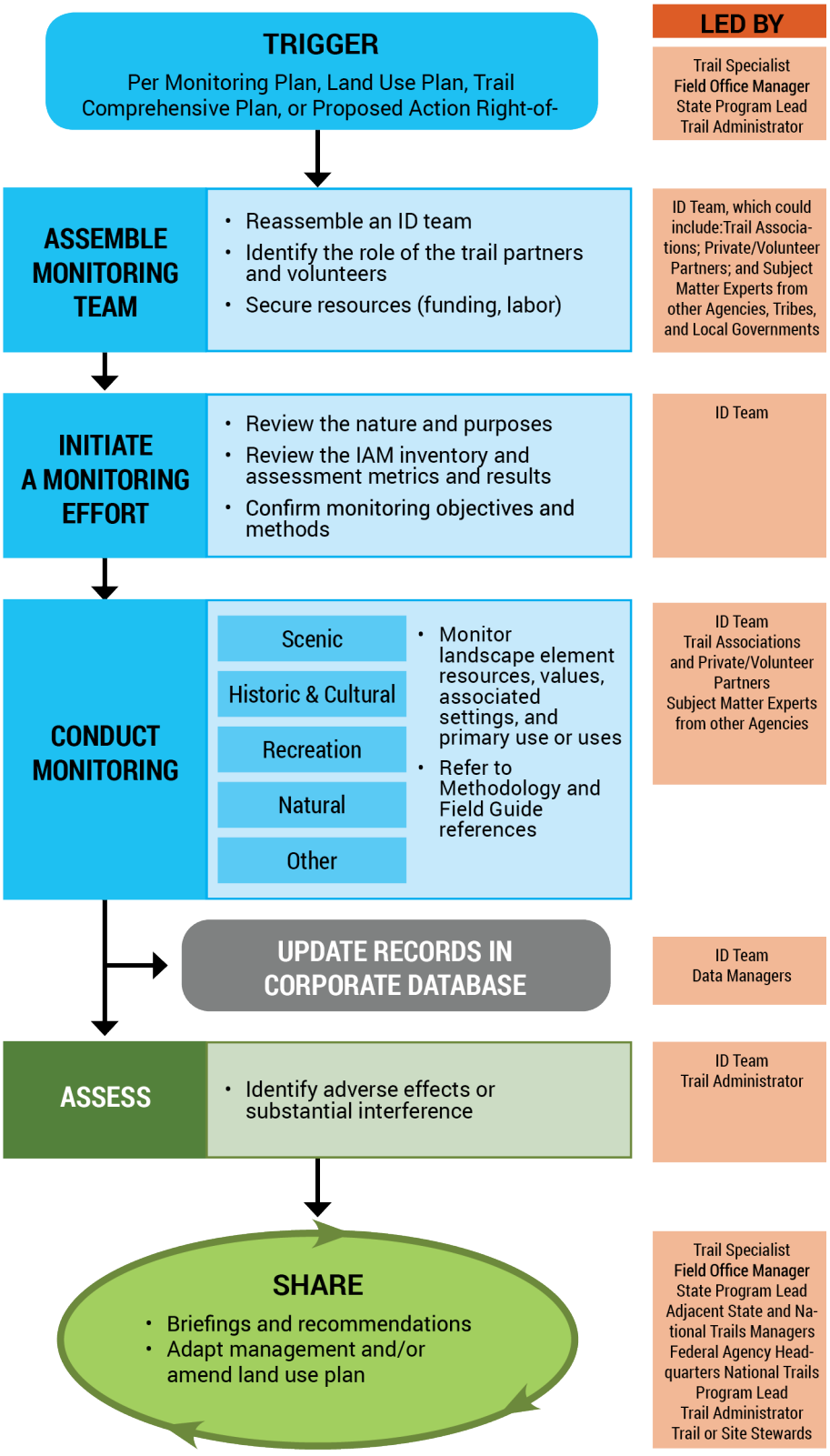

Figure 4. NSHT IAM Monitoring Methodology Flow Chart

Monitoring efforts revisit the initial set of Landscape Element metrics that were originally chosen by the Inventory ID team based on the National Trail's RQVASs and nature and purposes. When it comes time to start a monitoring program review the National Trail inventory and assessment findings. Apply adaptive management as time goes on to ensure the most appropriate information continues to be gathered to assess the status and condition of the National Trail's RQVASs and the primary use or uses.

What are the Components of a Monitoring Plan?

- Monitoring objectives (including priorities, indicator(s), and quantitative benchmarks for each indicator)
- Methodology (including delineation of monitoring units)
- Methods for reporting and sharing data
- Data dictionary

More information on monitoring planning (including establishing objectives and indicators) can be found on the BLM AIM website: https://aim.landscapetoolbox.org/design/sample-size/.

Observations made during monitoring serve to keep the National Trail's inventory current and provide a necessary objective body of information to reference when choosing management approaches or setting land use plan decisions as well as to aid project design, selecting project stipulations, and suggesting mitigation measures.

IAUs and IPs serve as the monitoring unit for the priority information that is collected as part of the monitoring effort. A GPS device may be used in the field or GIS may be used remotely to identify an IP so it can be easily located for repeated monitoring in the future. A thorough review of previously collected IP data is crucial in the evaluation of indicator data and changes over time. If inventory data is collected as a result of a proposed action, monitoring units should be defined to capture changes in baseline conditions over time based on the nature and purposes of the trail within the area of potential effect of the proposed action. In some instances, a smaller monitoring unit may be necessary to capture greater detail in a particular area.

Monitoring should occur at a level of intensity commensurate with the significance of resources, values, qualities, and associated settings to the trail's nature and purposes; the magnitude and duration of reasonably foreseeable impacts; and level of planned management. Prioritization defines which sites and resources along a National Trail need more frequent monitoring or whether special types of monitoring should be conducted.

Reviewing inventory points as part of monitoring process.

A sample NSHT monitoring form is included in Appendix B.

A data dictionary should be used that specifies which resources, qualities, values, associated settings, and primary use or uses will be monitored to meet the monitoring objectives. These could include the intactness of high potential historic sites and high potential route segments, historic trail trace condition categories, the conditions and use of interpretive sites and historic sites, and the scenic quality and freedom from intrusion of viewsheds. Other factors associated with the trail—such as visitor satisfaction and visitor capacities, conditions of high visitor use areas, public safety and hazard areas, and project implementation sites—may also be included. Resource uses and activities that are either compatible or incompatible should also be monitored to determine if they are causing adverse impacts or substantial interference. These may include energy development, mining, rights-of-way, grazing, wildlife, fuels treatments, fire suppression, special recreation events, dispersed visitor use, off-highway vehicle use, hazardous materials sites, and/or dumping sites.

To simplify monitoring, a standardized monitoring form adopted for the trail sites and segments can be implemented. The required monitoring provisions from BLM Manual 6280 should be included, and it should be tailored to include all of the relevant information that should be monitored.

6.2 Monitoring Plan Implementation

Rarely will long-term monitoring be accomplished by the same individuals every monitoring cycle. Further, even the simplest monitoring methods and protocols involve judgment. Therefore, following the monitoring plan is essential to maintaining data consistency and documenting trends.

Establish a monitoring frequency that: 1) achieves the monitoring objectives, and 2) can be accomplished with available resources. The frequency or rate at which monitoring occurs will not be the same for every trail, trail segment, or monitoring unit. Rather, the frequency of monitoring should depend on the importance (or priority) of the landscape element and/or the degree of adverse impact that is occurring. For example, if an activity (i.e., infrastructure construction) or natural process (i.e., disaster event) is producing ongoing resource damage, monitoring might need to occur weekly until the impact is mitigated. On the other hand, standard monitoring that is done to update the National Trail inventory and compare changes from baseline conditions may only need to be conducted annually or even once every several years. Close coordination with the ID team should define the appropriate frequency of monitoring and adaptations made as trail conditions and available resources change over time.

Regardless of how data is collected, results of monitoring efforts can be used to focus management and available resources to areas needing the most attention and help the Federal agencies learn about new activities or trends occurring on public land. Following monitoring activities, it is important to coordinate with adjoining land managers and/or Tribes so that data sharing is optimized.

6.3 Monitoring Documentation

The overall goal of a successful National Trail monitoring program is to improve management by documenting and communicating changes in conditions over time through the use of systematic observations. To achieve this, monitoring methods and findings should be documented in a consistent format that can be easily replicated over time.

Inventory and assessment establish baseline conditions. **Monitoring** determines changes from the baseline.

IAM does not establish thresholds – these should be established in lands use plans or agency guidance.

Approved agency data standards provide the basis of data recordation. Geospatial information should be collected in the field using the data dictionary and monitoring form. Remote data collection should be compiled and documented following the methodology developed in the monitoring plan. Access to monitoring data, including any restrictions and data sharing protocols, should also be determined in the monitoring plan.

It is important to maintain the monitoring information that has been collected. All collected information should be downloaded from field units and backed up as part of the BLM's corporate database. Within each IAU, note which sites and segments were monitored and when. Follow the monitoring schedule in the monitoring plan. Record the condition and identify the need for follow-up. In addition, report incidents of incompatible activities, adverse impacts, and determinations of substantial interference.

6.4 Assessing and Sharing Monitoring Results

Monitoring results update the previously completed National Trail inventory. Assessing the results (see Section 5) allows the team to conclude how resource and use conditions are supporting or detracting from the nature and purposes of the National Trail.

Adverse impacts and incompatible activities negatively affect National Trail resources, qualities, values, and associated settings, such as high scenic values, premier trail-related opportunities, and/or high potential historic sites and route segments. Adverse impacts may or may not reach the substantial interference threshold. Regular observations should show if authorized uses and activities are causing adverse impacts to National Trail resources and should identify if any incompatible activities or substantial interferences are or may potentially occur.

Finally, report changes in conditions and trends, with opportunities and recommendations for adaptive management, to agency managers. Work with managers to determine which partners need to know this information, and what information is appropriate to share. Monitoring results can lead to adjustments in the land use plan or implementation-level management decisions to address the uses, activities, and impacts.

Trail stewardship programs, such as the one detailed in BLM Manual 6280, offer a unique opportunity to set up a monitoring partnership for National Trails. Similar to site stewardship programs administered by the BLM and stewardship programs by other agencies, a trail stewardship program can focus on all of the landscape elements of the National Trails. For example, **high potential historic sites** and **high potential route segments** (sites and segments) may be monitored through the cultural resource program's site stewardship program. Coordination can ensure that trail stewardship and site stewardship programs complement rather than duplicate each other when they overlap National Trail resources.

7. IAM PARTNER AND VOLUNTEER TRAINING RESOURCES AND RECOMMENDED CERTIFICATION PROGRAM

As early as the 1920s, well before the National Trail System Act was signed, trail enthusiasts and Federal agencies have been working together to create a common vision and implementation strategy to collectively solve trail problems. This involves pooling resources such as labor, money, and information, and developing collaborative relationships among various stakeholders using a consensual decision-making process, to the greatest extent possible. These partnerships are becoming a vital factor in the stewardship, capital improvement, and management of public lands in the face of dwindling Federal resources. The reality is that partnerships are an ever more important means to expand stewardship and visitor services. Projects with partnerships have a higher priority for Federal funding and labor matches. A number of National Trail partners are currently involved in efforts—both organizationally and individually—to improve inventory and monitoring of National Trail assets across the country. These partnerships also serve to further volunteerism, local community support, and economic development.

7.1 Training Resources

Proper training for data collectors is essential for consistently gathering high-quality information. Calibration, or having multiple data collectors gather the same information at a site and then comparing the results, is also an essential activity for ensuring data are collected the same way. IAM training programs and resources are intended to help ensure that IAM data are defensible.

A comprehensive training program applying concepts associated with NSHT IAM methodology has been developed to provide step-by-step processes for initiation of a trails inventory through field data gathering methods and data management, assessment, monitoring, and sharing results. Training for agency staff and volunteers is available through:

- Online courses through the DOI Talent Portal and the Eppley Institute
- Classroom and in-field courses offered through the BLM National Training Center
- Local trainings upon request to support a specific IAM effort
- Conferences and workshops hosted by the Partnership for the National Trail System and other partner organizations

Online, classroom, and field trainings are available.

7.2 Certification for Partners and Volunteers

Recognizing the importance of training and data defensibility, the BLM requires that IAM participants meet minimum criteria, as summarized below.

Field Crew: Field crew members should present a copy of the following:

- Successful completion of the National Scenic and Historic Trails Management Course of Study available through the Eppley Institute, and
- Successful completion of the IAM assessment administered during a classroom and in-field course.

Landscape Element Lead: ID team members who lead the IAM for one of the landscape elements must complete the field crew training above, possess the applicable professional qualifications, and present a copy of the applicable degree, credentials, and experience relevant to the landscape element(s):

- **Scenic:** A landscape architect able to meet and follow the protocols of BLM Visual Resource Program course slides and materials (available through the Knowledge Resource Center, National Training Center), the USFS scenery management system as set out in the U.S. Department of Agriculture's National Forest Landscape Management Series (Forest Service Manual 2380), or similar Federal agency methods.
- **Historic and Cultural:** A cultural resource professional who meets the qualifications in the Secretary for the Interior standards for history, archeology, or architectural history.
- **Recreation:** A outdoor recreation planner possessing the program management knowledge of recreation and travel management, visitor services, special recreation use permitting, interpretation, facilities development, park administration, socioeconomics, or equivalent.
- **Natural:** A natural resource professional who has completed the Project Leads training of BLM AIM or similar Federal agency certification.

Project managers should ensure that field crews and ID team members receive proper training. In some cases, additional areas or levels of expertise may be needed, depending on the complexity of the task and the nature of the resources involved. For example, additional in-house training (first aid, safety, four-wheel driving, etc.) may be necessary depending on local circumstances, some of which is likely be available through local agency offices. Make sure to communicate additional training expectations.